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Worldwide Report

TELECOMMUNICATIONS POLICY,
RESEARCH AND DEVELOPMENT

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13 March 1985

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TELECOMMUNICATIONS POLICY, RESEARCH AND DEVELOPMENT

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WORLDWIDE AFFAIRS

WESTERN RADIOS SAID TO VIOLATE GENEVA BROADCASTING CONVENTION

Moscow MOSKOVSKAYA PRAVDA in Russian 4 Dec 84 p 4

[Article from NOVOSTI press agency, by B. Bannov, candidate of historical sciences: "Piracy on the airwaves; evidence points to the CIA"]

[Text] The Geneva Convention on the Use of Radio Broadcasting in the Interests of Peace (1938) obligates governments to do no harm to "good international mutual understanding" through their radio broadcasting. The convention calls for a ban on and immediate cessation of "the transmission of any and all programming which is intended to incite the populace of any territory to actions incompatible with the internal order or security of any of the High Contracting Parties". Articles 2 and 3 of the Convention obligate its signers to ensure that broadcasts by their radio stations are not an incitement to war, and forbid the dissemination of misrepresented information. Meanwhile, Western governments, primarily the United States, have unleashed a "psychological war" on the airwaves against countries of the socialist commonwealth, employing diversionary and subversive propaganda methods.

"The opponent has undertaken outright piracy on the airwaves", said Comrade K. U. Chernenko at the June (1983) CPSU Central Committee Plenum. "We are dealing with attempts to organize a true information and propaganda intervention against us, to turn radio and television channels into a weapon for interfering in states' internal affairs and conducting subversive actions."

Radio station "Voice of America" is Washington's main channel for subversive propaganda. With the intensification of the ideological war against the USSR and other countries of the socialist commonwealth it has ceased to take into account existing norms and regulations and has set out upon a course of open and flagrant interference in the internal affairs of other countries. In order to preserve the appearance of objectivity those propaganda broadcasts which are sharpest in tone are now being justified by the fact that, supposedly, the opinions and evaluations presented therein may not represent the official viewpoint of the United States government. Under this veil the "Voice of America" propagandizes the activities of all sorts of anti-Soviet organizations and groups, justifies spies who have been uncovered in the Soviet Union and popularizes turncoats and criminals who have been deservedly sentenced by socialist justice. Numerous "sovietologists" and "kremlinologists" take part in these broadcasts; their exaggerated authority is used to "hypnotize" listeners and

force them to believe the disinformation being disseminated. The "Voice of America" has become a mouthpiece for anti-Soviet mobs, broadcasting into the airwaves their "resolutions", "proclamations", "petitions" and other such propaganda materials. Over the next 5 years allocations for the activities of "Voice of America" will increase to several times their present level. More than one billion dollars will be spent for technical modernization alone.

Similarly to "Voice of America", the British radio corporation BBC, a government semi-official agency, is presented as a "national public institute". The "public" character of this organization is manifested only by the fact that it is partly supported by money paid by the population of Great Britain for the use of radio and television sets. All foreign broadcasting is directly financed by the government. The corporation's property belongs to the government.

BBC broadcasts abound with forgeries, slanderous fabrications and tendentious treatment of public opinion. The radio station picks up and disseminates any anti-Soviet statements, regardless of their source. It does publicity work for the activity of elements with an anti-Soviet inclination and underground publications which give veiled instructions concerning forms of struggle against the Soviet government.

Radio station "Deutsche Welle" in Cologne is yet another powerful propaganda center of imperialist reaction, aimed directly against socialist countries. A total of 40 percent of the weekly broadcast schedule of the "Deutsche Welle" to the Soviet Union is devoted to cock-and-bull stories about imaginary USSR preparations for war and to distortion of its foreign policy. An additional 40 percent of the radio broadcasts are devoted to propaganda for anti-Soviet views and the activity of assorted turncoats. And only one fourth of one percent of air time is given over to information about life in the FRG.

An analysis of broadcasting to the USSR by the "Voice of America", the BBC and the "Deutsche Welle" indicates that they are coordinated from a single center. News summaries and political programming on these 3 leading Western radio stations practically never "overlap", alternating neatly between stations. In doing so the time difference in various regions of the USSR is taken into account. Thus, morning and nighttime broadcasts (Moscow time) are clearly set up with listeners in the eastern regions of our country in mind. The content of programming is also coordinated; there is effected a close interaction with subversive CIA stations "Radio Liberty" and "Radio Free Europe" and an exchange of anti-Soviet reports and interviews. The American press reports proposals to combine the "Voice of America", the BBC, the "Deutsche Welle" and "Radio Canada" into a single conglomerate with the goal of intensifying anti-Soviet and anti-socialist propaganda.

At the CPSU Central Committee Plenum in June 1983 K. G. Vayno, first secretary of the CPE Central Committee, cited the example of one of the most brazen political provocations in which anti-Soviet radio stations have participated. It consisted of the fact that some inhabitants of Tallinn suddenly began to find letters in their mailboxes, in which the staging of a half-hour strike was called for. To the recipients it was not even clear yet who was calling upon them to strike or for what, when a great racket was raised on all Western

radio stations and in the Western press concerning a large strike which was allegedly in the offing in Soviet Estonia. Correspondents from a whole series of bourgeois newspapers and press agencies flew in to Tallinn to "reap the fruits". But this whole fraternity had seriously miscalculated. The most active republic Party members and ideologues efficiently and precisely carried out explanatory work among the populace, exposing the foul aims of the subversive action's organizers. And, as one might have expected, this undertaking burst like a soap bubble.

The obvious coordination of action between the CIA, bourgeois propaganda and turncoats and betrayers of the Motherland is observable in all similar provocations.

12825

CSO: 1807/168

HONG KONG

LOCAL DEVICE ENDS DATA COMMUNICATIONS ERRORS

Hong Kong HONGKONG STANDARD in English 24 Jan 85 Business Standard p 3

[Text]

A NEW device, aimed at eliminating errors on vital datacommunications links has been introduced by Datacraft Hongkong, a leading supplier of datacommunications and leading edge technology equipment and systems.

The compact new device provides full asynchronous to synchronous conversion communications functions necessary for modern remote computer link-ups as well as possessing a unique error correction feature that ensures total protection against any form of data loss or corruption during transmission.

Known as the ARQ, and manufactured by the Australian company, Comac, the new device offers a range of facilities to improve computer communications capabilities and performance.

"With the ARQ device installed between their computer and modem a user is assured of clear, 100 per cent accurate data transmission every time," said Mr Richard Duval, Marketing Manager,

Datacraft.

Utilising the highly sophisticated Automatic Retransmission on request procedure (ARQ), the ARQ will ensure that any suspect or garbled data is sent again by the buffer built into the Comac device, which means a clean, uncluttered message every time for the user.

A special speed conversion capability means that the ARQ can provide the interconnection of asynchronous devices operating at differing rates. The device can also interface to terminals, computers and modems operating at transmission speeds from 50 to 9600 bits per second.

Aside from sophisticated error correction and high speed communications functions the Comac ARQ is completely transparent to data and machine control signals. This allows the device to be easily installed without tedious and often expensive hardware or software modifications to attached

equipment.

"The ARQ unit is so simple and efficient that we feel that it should find a ready market among the already highly computerised business sector of Hongkong," Mr Duval said.

Interfaces on ARQ include DTE and DCE, both conforming to international RS 232 and CCITT V24 standards.

The ARQ is just a little larger than a conventional VHS video cartridge, (30mm x 165mm x 125mm) weighs only one kilo and is available as a standalone unit or in rack mountable formats. The ARQ's power requirements are satisfied either by a separate AC/DC power pack or by the built-in 12 volt power jack.

Datacraft HK is a leading supplier of datacommunications equipment and also offers a design and consultancy service for the installation and maintenance of more complex datacom networks.

CSO: 5540/018

JAPAN

TELETEX LINK PLANNED WITH U.S., OTHER COUNTRIES

OW070935 Tokyo KYODO in English 0729 GMT 7 Feb 85

[Text] Tokyo, 7 Feb (KYODO)--Japan's international telecommunications monopoly is preparing to start teletex (communication between specialized word processors) services with four countries--the United States, Britain, France and Spain--early in fiscal 1985, an official said Thursday.

As compared with the existing telex service, the projected service will be about 50 times faster in transmission speed, and cost much less--about a fifth in some cases where teletex terminals alone are used, the Kokusai Denshin Denwa Co (KDD) official said.

KDD is planning to expand the service gradually. He said major trading companies and manufacturing companies will probably be the main users.

The official said the teletex service will combine the international packet-switched data transfer service (dubbed venus-p), developed in 1982 by KDD, and the domestic digital data exchange (DDX) service.

Users are asked to use teletex terminals (communicating word processors) that meet the standards established by the CCITT (International Telegraph and Telephone Consultative Committee).

The teletex service has recently begun, spreading mainly in West Germany, with international teletex services offered between West Germany and some Scandinavian countries, the official said.

It is the first time that an international teletex service will be instituted on so large and wide a scale as planned by KDD. The Ministry of Posts and Telecommunications (MPT) is in support of the KDD project, the official said.

KDD has developed an English-language teletex system, and test-manufactured English-language teletex terminals.

KDD has successfully conducted tests on teletex terminal connectability with America's RCA Global Communications Inc, Britain's British Telecom International, the French Ministry of Postal Services and Telecommunications, and Spain National Telephone Co, the official said. KDD-developed terminals were used in the tests.

KDD is preparing to enter into teletex service arrangements with the four organizations with the target of starting the services in April.

The official said similar arrangements may be made with other American companies like Western Union International and ITT Worldcom.

CSO: 5500/4512

JAPAN

OPTICAL FIBER COMMUNICATIONS LINK IN SERVICE

OW080411 Tokyo KYODO in English 0215 GMT 8 Feb 85

[Text] Tokyo, 8 Feb (KYODO)--A newest communication link using optical fiber technology was put into practical service Friday, transmitting bulk information over most of the length of the Japanese archipelago.

The 3,300-kilometer optical fiber cable, completed by the Nippon Telegraph and Telephone Public Corporation (NTT), links Asahikawa on the northern main island of Hokkaido to Kagoshima, the southern tip of Kyushu, NTT officials said.

The circuit is expected to serve as the "artery" of Japan's telecommunications system in the advent of an information society, the officials said.

NTT has been operating a section between Tokyo and Osaka since September last year prior to the completion of the whole stretch.

The cable circuit, built at the cost of 65 billion yen (\$250 million), uses f400m, a sophisticated type of the optical fiber, according to the officials.

The f400m is capable of transmitting 400 million optical signals a second, and, with one system made up of two hair-like fibers, telephone calls on 5,760 circuits are possible at once, NTT officials said.

Transmission capacities are different according to the demand for telecommunication in each area, with the Tokyo-Osaka section, the most demanding area, being equipped with 12 such systems.

As a whole, the cable link is equivalent to some 70,000 telephone circuits, according to the officials.

NTT plans to build "branch" cable lines connecting the trunk line with major cities along the sea of Japan coast, they said.

CSO: 5500/4512

JAPAN

VICTOR DEVELOPS IMAGE-SOUND-DATA SYSTEM

OW131445 Tokyo KYODO in English 0910 GMT 13 Feb 85

[Text] Tokyo, 13 Feb (KYODO)--Victor Company of Japan (JVC) has developed a computer-controlled audio-visual network system, using an eight-bit personal computer, the company said Wednesday.

A spokesman said the system is usable as a local area network (LAN), capable of transmitting both sound and image in addition to data, only which can be transmitted by the common LAN.

The system is made up of a three-tube color video camera, a personal computer, a 3.5-inch floppy disk drive, a 15-inch or 14-inch color monitor television set, a 0.5-inch videotape recorder and a video dish player of the video high density (VHD) type.

This system is also usable as a simple teleconferencing system, the spokesman said.

One set of the system is linked with another set or a third set only by a single coaxial cable, using a modem (modulator-demodulator), he said.

The system is very easy to operate. It can be operated by touching a panel on the screen of a monitor TV.

The LAN is an in-house data communications system, connecting a number of microcomputers together. A LAN often includes a large mainframe computer as well, thus permitting microcomputers to act both in stand-alone mode and as terminals.

The modem is a device placed between a communicating machine and a telephone line to permit the transmission of digital pulses. A phone line is not capable of carrying digital signals as produced by computer-related equipment, having been designed instead to carry the alternating current of voice-type signals. The modulator converts the pulses of bits into tones and sends them on the line; the demodulator changes the received tones back into corresponding bits.

CSO: 5500/4514

JAPAN

NEC DEVELOPS LARGE SCALE LSI FOR TELEPHONE

OW141035 Tokyo KYODO in English 0959 GMT 14 Feb 85

[Text] Tokyo, 14 Feb (KYODO)--NEC Corp has developed a new large scale integrated circuit (LSI) allowing the use of one digital phone circuit to act as two circuits, the company claimed Thursday.

A spokesman said the new LSI is a single-chip signal processor for adaptive differential pulse code modulation (ADPCM) algorithm, based on the standard set by the International Telegraph and Telephone Consultative Committee (CCITT).

The spokesman described the processor as "the first of its kind to be developed in the world."

He said the development of the processor was reported Wednesday at the international solid-state circuits conference, now under way in New York.

The spokesman said if the new processor is used, the size of digital communication equipment could be reduced to about a fifth, and the production cost to about a quarter.

In the existing digital phone network, the transmission speed of one circuit is 64 kilobits per second; that is, the circuit is so designed as to send 64,000 pulse signals per second. The ADPCM formula is intended to utilize the circuit more efficiently, the spokesman said.

The CCITT ADPCM algorithm calls for halving the transmission bit rate. The capacity of the existing transmission facilities can be effectively doubled.

On the algorithm, the spokesman said the difference between the input signal (8-bit PCM code) and the prediction signal is encoded into a 4-bit signal. The prediction signal is adaptively generated from the transmitted 4-bit signal.

The newly developed LSI for ADPCM is 8.2 mm wide and 7.4 mm long. About 60,000 transistors are integrated on the substrata and it is of a powersaving structure.

Its power consumption is about 90 milliwatts, much more powersaving than the comparable LSI now used for signal processing.

The new LSI can efficiently convert PCM signals into ADPCM signals and vice versa.

NEC has however, no intention of marketing the new product, the spokesman said.

The new LSI will be used in NEC's high speed digital leased circuit multiplexers and terminals for satellite communication.

CSO: 5500/4514

JAPAN

BRIEFS

TELEPHONE SWITCHING SYSTEM TO PRC--Tokyo, 14 Feb (KYODO)--Fujitsu, Ltd announced Thursday it will export 30 digital telephone switching systems to China. China will install the equipment in 12 provinces, including Fujian and Zhejiang, between February, next year, and the end of 1987. Japan's largest communication equipment maker did not disclose the export amount but said it would be about "several tens of billion yen." It is expected to buy more of the device in the future as it is rapidly expanding communication networks, company officials said. [Text] [Tokyo KYODO in English 0715 GMT 14 Feb 85 OW]

TRANS-PACIFIC SATELLITE SERVICE PERMISSION--Tokyo, 13 Feb (KYODO)--Kokusai Denshin Denwa Co (KDD) announced Wednesday it has applied for government permission to begin new trans-Pacific telecommunications services in collaboration with Satellite Business System (SBS) and French Telegraph Cable Co (FTCC), both of the United States. According to the applications, KDD and SBS will jointly operate a leased circuit communications service between Japan and the United States, and KDD and FTCC, joint leased circuit and telex services between the two countries. The projected new services call for the use of Intelsat and SBS communications satellites. SBS is a joint venture of International Business Machines Co (IBM) and a U.S. life insurance company. If the applications are accepted by the Posts and Telecommunications Ministry, the number of foreign operators of Japan-U.S. leased circuit services will increase to eight from the present six. [Text] [Tokyo KYODO in English 1106 GMT 13 Feb 85 OW]

CSO: 5500/4514

PEOPLE'S REPUBLIC OF CHINA

FUJIAN ACHIEVES GREAT DEVELOPMENT IN POSTS, TELECOMMUNICATIONS

Fuzhou FUJIAN RIBAO in Chinese 22 Sep 84 p 1

[Article by Liu Xingshui [0491 5887 3055] and Dai Xingjin [2071 5887 6855]]

[Text] During the 35 years since the establishment of the country, Fujian Province has greatly developed its posts and telecommunications. Post and telecommunications offices can be found everywhere in the cities and rural areas. The communications networks extend in all directions. Long-distance communications evolved from open-wire lines and manually operated switch-boards to microwaves, cables and semi-automatic and automatic dialing. Local telephones developed from a magnet and common-battery system to a crossbar system and program-controlled multi-functional automatic system. Telegrams developed from telegraph operators copying down messages to teleprinters, high-speed electronic teleprinters and facsimile and Chinese decipherers. Postal transportation developed from manual transportation to automobile, train and airplane transportation. With the widespread use of advanced postal and telecommunications equipment, both the communication quality and the service level have been greatly improved.

At the liberation of the country, Fujian had only 6 mail trucks, slightly over 7,000 telephone exchanges and 5,000 km of overhead open wires. Thirteen counties and cities could not exchange telegrams with the capital; 23 counties and cities had no telephones at all. The province's posts and telecommunications have developed rapidly in the last 35 years, especially after the 3d Plenary Session of the 11th Party Central Committee with the support of the government and the Ministry of Posts and Telecommunication. The investment in capital construction for 1980-1984 alone exceeds that of the previous 30 years by 50 percent. Currently, the province has over 2,000 post and telecommunications offices and over 38,000 km of postal routes. The mail delivery routes in the rural areas extend for over 63,000 km, and 99.7 percent of the brigades and 63.7 percent of the production teams are accessible through the postal services. The province not only has postal communication with countries and areas throughout the world except South Africa, South Korea and Israel but has also set up direct mail connections with cities in over 10 countries including Singapore, Manila, Rangoon and Kuala Lumpur as well as the Hong

Kong area. Fuzhou and Xiamen have even opened up international express delivery service, which has been enthusiastically welcomed by customers. Using the service, it takes only 2 days for mail to go from Fuzhou to Hong Kong and 3 days from Fuzhou to America. As for telecommunications, 20 counties and cities of the province have automatic telephones and the total telephone system capacity exceeds 68,000 subscribers. The direct-dialing program-controlled telephone equipment imported by Fuzhou and Xiamen is at the advanced 1980 world level. In November 1982, Fuzhou's direct-dialing program control was completed and put into operation. Xiamen's direct-dialing program-control will also be put into operation by the end of this year. Presently, many cities and counties including Fuzhou, Quanzhou, Xiamen, Zhangzhou, Sanming, Nanming, Putian, Jinjiang, Nanan, Fuqing, Changle, Lianjiang, etc. have opened up long-distance direct- and indirect-dialing telephones to Hong Kong area and over 20 cities including Beijing, Shanghai, etc. Authorized telephone customers can dial directly by themselves or indirectly through program control exchange equipment. Due to fast connections and good quality, the business has accordingly grown very rapidly. The average number of calls from Fujian to Hong Kong reached 13,000 a month for the first 8 months of this year. Regular long-distance telephones and telegrams can be sent throughout the world. Facsimiles have been used between Fuzhou, Xiamen and Beijing, Shanghai, Hong Kong and between Fuzhou and Tokyo, Japan. Telexes, which can be sent inside and outside the country, have also been used in Fuzhou and Xiamen. So far, there are over 500 km of microwave main lines being built which can transmit Beijing's television programs and facsimiles of RENMIN RIBAO and CANKAO XIAOXI.

In order to adjust to the new open policies and to meet the domestic economic demand, the province's posts and telecommunications departments are working hard to accelerate their construction speed. There are two small interprovincial coaxial cables, one of which goes north from Fuzhou to Hangzhou and links it to Shanghai and Beijing. The other goes south from Xiamen to Shantou. There are two microwave lines, one of which goes from Fuzhou to Xiamen, the other from Fuzhou via Nanping, Sanming, Yong'an, Zhangping, Longyan to Zhangzhou, forming an intraprovincial microwave circuit. Fuzhou and Xiamen each have built a key postal control project which will use mechanized and automatic equipment as well as introduce computing equipment to calculate the required number of newspapers and journals and handle the processing and checking of other kinds of numerical data.

12369

CSO: 5500/4146

PHILIPPINES

COLUMNIST DEFENDS UNESCO NEW WORLD INFORMATION ORDER

Manila PHILIPPINES DAILY EXPRESS in English 20 Jan 85 pp 4, 5

[Media Monitor by Filosofo Tasio: "Let's Take It From the Top"]

[Text] All right, boys, once more, from the top.

There's no such thing as the licensing of journalists in the UNESCO's New World Information and Communication Order. As a matter of fact here is a compression of the Mass Media Declaration of 22 November 1978 which is the basis of all the chorus of discontent from the Western and Western-influenced media.

Article I

The strengthening of peace and international understanding, the promotion of human rights and the countering of racialism, apartheid and incitement to war demand a free flow and a wider and better balanced dissemination of information.

Article II

Access by the public to information should be guaranteed by the diversity of the sources and means of information available to it, thus enabling each individual to check the accuracy of facts and to appraise events objectively. To this end, journalists must have freedom to report and the fullest possible facilities of access to information.

The mass media throughout the world, by reason of their role, contribute to promoting human rights by giving expression to oppressed peoples who struggle against colonialism, foreign occupation and all forms of racial discrimination and oppression and who are unable to make their voices heard within their own territories.

It is essential that journalists and other agents of the mass media, in their own country or abroad, be assured of protection guaranteeing from the best conditions for the exercise of their profession.

Article III

The mass media, by disseminating information, contribute to eliminate ignorance and misunderstanding between peoples, to ensure the respect of the rights and dignity of all nations... thereby promoting the formulation by States of the policies best able to promote the reduction of international tension.

Article IV

The mass media have an essential part to play in the education of young people.

Article V

In order to respect freedom of opinion, it is important that the points of view presented by those who consider that the information published about them has seriously prejudiced their efforts, be disseminated.

Article VI

It is necessary to correct the inequalities in the flow of information to and from developing countries, and between those countries.

Article VII

By disseminating more widely all of the information, the mass media contribute to the strengthening of peace and international understanding.

Article VIII

Professional organizations, and people who participate in the professional training of journalists, should attach special importance to the principles of this Declaration.

Article IX

It is for the international community to contribute to the creation of the conditions for a free flow and wider and more balanced dissemination of information, and of the conditions for the protection, in the exercise of their functions, of journalists and other agents of the mass media.

Article X

It is indispensable to create and maintain throughout the world the conditions to achieve the objectives of this Declaration.

It is important that a free flow and wider and better information be encouraged.

It is essential that bilateral and multilateral exchanges of information among States, and in particular between those which have different economic and social systems, be encouraged and developed.

Article XI

It is necessary to guarantee the existence of favorable conditions for the operation of the mass media, in conformity with the provisions of the Universal Declaration of Human Rights and with the corresponding principles proclaimed in the International Covenant on Civil and Political Rights adopted by the General Assembly of the United Nations in 1966.

CSO: 5500/4317

CANADA

CONSTANT UPGRADING OF NORTEL'S DMS-100 SWITCH DESCRIBED

Toronto THE GLOBE AND MAIL in English 14 Dec 84 p B19

[Article by Lawrence Surtees]

[Text]

The reason for the continued success of digital telephone switches made by Northern Telecom Ltd. of Mississauga, Ont., can be found in an Ottawa laboratory behind the glass walls of a "captive office."

There, in the recently completed Laboratory 3 at Bell Northern Research Laboratories, is a complete DMS-100 switch able to serve a city of 100,000 telephone subscribers. The switch is held captive by the BNR researchers responsible for developing enhancements and customizing Northern Telecom's flagship product.

BNR is the research and development arm of Northern Telecom, which owns 70 per cent of it, and the utility arm of Bell Canada Enterprises Inc. of Montreal, which owns 30 per cent. The labs have a budget this year of \$370-million — 35 per cent of it will be spent on further development of the DMS switch line.

The DMS switch was the world's first fully digital central office

switch. It emerged from BNR labs in 1979 after a six-year research and development effort. Researchers and Northern Telecom officials contrast the product's evolution, which they say has just begun, with other high-technology wares that become obsolete almost as soon as they go to market.

In the past 10 years, fuelled by increased sales of the DMS product line and divestiture of American Telephone and Telegraph Co. of New York, Northern Telecom has seen its sales grow to a forecasted \$4.2-billion in 1984 from \$1.9-billion in 1979. For the nine months ended Sept. 30, it sold more than \$1-billion of DMS switching gear, compared with \$962-million in 1983.

The DMS switch is essentially a large computer, consisting of software programs and a printed circuit board, called a line card, for each telephone line hooked up to it.

"The name of the game for us is that one little extra line card. If

we can't add one to the switch with new functions or reduced size, some other competitor will find a way to beat us," said George Smyth, BNR's vice-president of digital switching systems.

He said the competitive position of BNR and Northern Telecom comes "only once in the lifetime of a company" and the opportunity to gain greater international market share with the DMS results from the technology, the U.S. sales gains and "the trouble competitors are having with the same technology."

At the heart of the DMS switch is a BNR-developed computer language, Protel. "It is a higher programming language, much like the fourth generation expert systems languages, that defines instructions in related modules," Mr. Smyth said.

Depending on a customer's needs, a single DMS switch may contain as many as 5,000 programming modules. The software is contained in microproces-

sor chips, developed at BNR's silicon chip labs.

In the past six years, BNR integrated circuit designers have made several changes to the circuit board line cards that have not only added new functions but also expanded the switch's capability. The latest card is almost half the size of the first one because of a breakthrough in miniaturization that means both sides of a card can be used.

Mr. Smyth emphasized that the switch is a silicon chip and software-driven product that has shifted the focus of much of the group's work from earlier days. "The set of programs needs to be effectively managed in order for the product to evolve. While the first switch permitted several different telephone company switches to be integrated into a smaller, single product, the language behind it permits many other changes."

He estimates that BNR software designers rewrite or change 20 per cent of the DMS software every four months.

But the lab's work extends to customizing switches for Northern Telecom's customers. For example, researchers are writing new programs for the five DMS 100 switches sold to Turkey for its telephone system. Only 80 of the 5,000 program modules need to be changed, Mr. Smyth said, for the part of the

switch that handles residential telephone connections, but as many as 400 program modules may need to be changed for business telephone use.

As Northern Telecom shifts its marketing emphasis to countries beyond North America, BNR will also follow.

"We also have several other captive offices for product support in the United States and at our new lab in Maidenhead, England. These labs are kind of a McDonald's-type franchise operation for development labs," Mr. Smyth said.

One of BNR's larger customer support labs is in Dallas, set up to customize switches for competitive U.S. telephone companies. The arrival of the DMS 100 switch also coincided with regulatory decisions in the United States that created a booming market for companies wanting to compete with AT and T.

"Dallas is the hotbed of switching houses for that market, which has its own, unique demands. Our participation in it gives us a window on how different markets and companies are pushing telecommunication technologies into new directions," Mr. Smyth said.

"Designers and developers have to see the results themselves and have experience with new software which is why we are taking our labs to the market."

CANADA

MILLER TO DEVELOP AIR-TO-SHIP LINK, DIGITAL RADIO SYSTEM

Ottawa THE CITIZEN in English 3 Jan 85 p C7

[Article by Barbara Crook]

[Text]

Kanata's Miller Communications Systems Ltd. has been awarded \$2-million worth of federal government contracts, including the largest single contract in its 11-year history.

The firm has won a \$1.6-million contract from Environment Canada's Atmospheric Environment Service to develop an air-to-ship data link to help Arctic ships avoid ice blockages and icebergs.

The second contract, a \$400,000 deal with the Department of Communications, calls for Miller to develop a digital radio program delivery system to transmit data and stereo radio signals over satellites.

Founder and president Allan Miller says the contracts might add a few jobs to the company's 50-person payroll, but he says Miller Communications is conservative in its expansion plans.

"These contracts will keep people working, rather than cause us to hire new people," he says.

"At the moment, we're concentrating on building depth, not breadth."

The two contracts will also make a major contribution to the company's revenue, which Miller is expecting to reach \$3.5 million for the year ending June 30.

The air-to-ship data link is to be used in Atmospheric Environment Service's ice reconnaissance program, which provides information on ice patterns and blockages to such users as Canadian Coast Guard ice-breakers, drilling rigs and other ships in ice-infested waters.

The Miller system takes data gathered by the radar systems in specially-equipped de Havilland Dash-7 planes and instantly transmits the data to a ship in the area.

Another local firm, Canadian Astronautics Ltd. of Ottawa, has developed the side-looking airborne radar systems for the ice reconnaissance planes.

The "real-time" feature of the Miller system means that a ship travelling in icy waters can get immediate information about ice patterns, instead of having to wait several hours for a report, and can plan its route accordingly.

"Ice conditions can change in a matter of hours, and getting information in real time for applications in the far north is really important," says Terry Rubino, manager of Miller's telemetry system division.

"The system will also extend the time ships can navigate safely in the north, which will be a real bonus for the oil and

other natural resource industries."

Rubino says this type of data link could have many other applications, including aerial surveillance for drug smuggling control, fishing boundary control, monitoring oil spills and military applications.

Allan Miller says part of the company's strategy is to supply its systems to larger companies like MacDonald Dettwiler and Associates of Richmond, B.C., and de Havilland Aircraft, which have international contracts and experience in foreign markets.

"These companies have the international experience, and we are hoping to ride on their wave as well," he says.

The second contract calls for Miller Communications to develop a radio transmission system for the Department of Communications.

This equipment could eventually be used by the Canadian Broadcasting Corp. and other North American broadcasting companies to distribute stereo radio programming via satellite, according to Brian Mazur, manager of Miller's satellite communications systems division.

Mazur says existing stereo transmission equipment is limited because it is based on an older technology known as analog. The Miller system is based on digital technology, which provides higher-quality transmissions.

CSO: 5520/27

CANADA

MITEL ANNOUNCES GENERIC 1000 ENHANCES SX-299 SWITCH

Toronto THE GLOBE AND MAIL in English 18 Jan 85 p B17

[Article by Lawrence Surtees]

[Text]

There is more than meets the eye to the Generic 1000 product announced earlier this week by Mitel Corp. of Kanata, Ont. — the device that makes its small telephone switch digital and doubles its capacity.

In planning a renewed assault on the world telecommunications market, company co-founder Terry Matthews is not only betting that the delayed, large SX-2000 will be successful, but that its technology can be grafted on to existing small switches to fill out Mitel's product line.

While others are busy managing a corporate turnaround based on cost cutting and inventory management, research and development teams are developing new products based on his blueprint.

Mr. Matthews, president and chief executive, believes Mitel can be transformed from a recently troubled manufacturer of small telephone switches to a company able to dominate the world market

by selling the fullest product line of any vendor in the most countries.

The Generic 1000 is the first enhancement to be spun off from the SX-2000 program and converts the SX-200 private branch exchange (PBX) into a digital PBX. It also increases the switching capacity of the SX-200, allowing up to 350 lines to be attached, compared with the 150 lines now hooked up to it in a typical setup.

The product will be available to distributors in July and Mitel officials from Mr. Matthews on down take great pains to stress it will be available on time. "The product is now being manufactured in limited runs at our Renfrew plant and volume production will be able to begin on time," said Larry Woods, head of the Generic 1000 design team.

For the past two years, engineers and software experts have gradually been seconded to the Generic 1000 project on the sixth floor of its new R and D

centre in Kanata — code named Project Arrow — away from the SX-2000 as the large switch has gone into production.

Mitel's initial success was built on the SX-200, the first PBX made by the company, which went into production in 1978. Since then, Mitel's revenue growth has come mainly from sales of systems with fewer than 100 lines. The company has captured 20 per cent of the world market for this segment, establishing an installed base of more than 73,000 systems with more than 3.5 million telephone lines in 80 countries by August, 1984.

An existing SX-200 can be upgraded slowly to the full capacity of the Generic 1000 or bought separately if a customer wants a medium-sized PBX. For the full capability, a second SX-200 cabinet is needed and one cabinet has new hardware and software added in the lower half.

At the heart of the Generic 1000 is a central processor consisting of a disc drive containing the essence of the SX-2000 software. And a line card is added that makes the PBX digital, able to switch large amounts of data and voice simultaneously. In addition, the Generic 1000 software adds new features and diagnostic maintenance packages to the SX-200.

With this software, new operator console telephone sets and maintenance terminals can be hooked up to the PBX.

"Although the main telephone software is the same, we have had to rewrite some of the software and code for the Generic 1000, giving us a cross between the SX-200 and SX-

2000," Mr. Woods said.

As well as rewriting the software, Mitel has added its latest generation of silicon chips to the Generic 1000. Developed for the SX-2000, they are smaller, faster and cheaper than its first generation of digital matrix integrated circuits.

"We intend to take full advantage of our new product, the SX-2000, to become profitable again and make Mitel a much tighter company," Mr. Matthews said. The gamble, though, is time, having missed the window with the SX-2000, and whether enough existing or potential customers will buy the upgrade after waiting almost three years.

"The Generic 1000 should have been there three years ago," said Donald Gibbs, vice-president of Cognos Inc. of Ottawa and, until last June, executive vice-president and chief operating officer of Mitel. "In today's PBX world in the United States, you can buy a digital PBX for as much as an analog switch.

"Mitel's biggest challenge, particularly in the U.S. market, is convincing people it is there to stay, its new product is good and existing products will be improved. The signs are good but Mitel is a long way from home."

With the SX-2000, Mitel has learned that "all things are not possible to all companies," and a successful strategic plan must "extend the unique capability of the company and its special strengths in competition," Kenneth Andrews, editor of the Harvard Business Review wrote in a recent article on corporate strategy.

CANADA

GE MARKETING OF NETI ELECTRONIC MEETING SYSTEM DISCUSSED

Vancouver THE SUN in English 23 Jan 85 p B7

[Article by Bruce Constantineau]

[Text]

NETI Technologies Inc. of Vancouver and General Electric Information Services Co. will have to adopt a "very hard sell" approach to ensure success in marketing NETI's electronic meeting system.

That was the reaction from one industry observer Tuesday after NETI announced that GE, a component of the huge General Electric Corp., has agreed to market the system for a minimum of three years.

"I think they have an enormous marketing task ahead of them but maybe GE can generate a lot of traffic," said Graham Kirkland, president of Third Capital Corp. of Toronto, an investment firm specializing in high technology.

"The market will grow but it will grow slowly and the big task now will be to explain to (potential customers) why they need the system and how it works. It will take a lot of promotion."

The agreement calls for NETI's so-called eForum conferencing system to be distributed on GE's telecommunications network, the largest commercially available network in the world. GE, with annual sales of about \$700 million, offers information business systems to some 6,000 worldwide corporate clients.

NETI, with offices in Ann Arbor,

Mich., is listed on the Vancouver Stock Exchange and company shares rose from \$7.75 each at the beginning of the year to a high of \$11½ last week before settling at \$10½. Trading in NETI shares, which was halted Monday pending the announcement of the GE deal, is scheduled to resume today.

NETI shares rose in heavy trading earlier this month after the company announced a proposed deal with AT&T that would see the U.S.-based telecommunications giant market a computer conferencing system NETI had developed for corporate legal work.

NETI and GE spokesmen would not divulge a dollar value for the latest deal but Assa Manhas, NETI's director of Canadian operations, said the potential market for NETI's system is "massive," possibly in the "hundreds of millions" of dollars. The agreement calls for NETI to receive an unspecified proportion of software sales.

GE is scheduled to begin marketing the system this summer, Manhas said.

NETI's eForum electronic meeting system can reportedly be used on several types of input devices, including teletype terminals, microcomputers and all popular brands of word processors.

CANADA

BRIEFS

NORTHERN COMMUNICATIONS SATELLITE PROPOSAL--Ottawa (CP)--The Government should consider setting up a multi-billion-dollar military space program using satellites for northern communications, surveillance and early warning against Soviet attack, a Senate defence committee study says. The recommendation is in a 55-page report that says shared Canada-U.S. air defences are so outmoded "hostile bombers could fly undetected into the heart of North America" to make a surprise attack. Although Canada and the United States already are committed to upgrading northern air defences, improvements in ground-based radars will take years, while "there are great gaps in surveillance coverage of North American airspace." For the balance of the century, the report urges "early agreement" with the United States for upgrading air defences. In the next century, the major radar and surveillance devices may well be stationed in space, and Canada will have to decide whether to develop its own satellites or share with the United States. [Text] [Toronto THE GLOBE AND MAIL in English 24 Jan 85 p 5]

CSO: 5520/27

BULGARIA

MINISTER DWELLS ON STATE OF COMMUNICATIONS, FUTURE TASKS

Sofia IMPULS in Bulgarian 8 Jan 85 p 2

[Summary of speech of Minister Pando Vanchev to expanded board of Ministry of Communications on 25 December 1984: "Basic Tasks Confronting Labor Collectives in Fulfillment of 1985 Plan"]

[Text] Comrades, permit me to congratulate you heartily on fulfilling your state targets and counterplans ahead of time and thank you for your dedicated and highly demanding labor which you are investing in the development of Bulgarian communications.

In 1984 Bulgarian communications continued to develop efficiently. In the past 12 months, as well as throughout the Eighth 5-Year Plan, we have steadfastly followed the right course of systematically improving public services and raising the efficiency of the national economy by using communications as an effective factor in the country's development. The sector has made unquestionable and important progress, which with good reason has found a place in our report to the BCP Central Committee. The services which we offer the public and the national economy continued to grow at a steady pace. Owing to the increased scale of communication services the public in our country, as well as the national economy, is more satisfied and the time that our society spends on communication services and administration has declined. I want to point out that with the more than 540,000 telephone stations it has installed the Ministry of Communications has already overfulfilled the targeted 5-year increase a year ahead of time. Thus far 125 new post offices have been opened up, 250 radio transmitters and retransmitters have been installed and put into operation, and automation of interconurbation communications has reached a level of 77 percent as against the 68 percent targeted for the 5-year period.

From what has been said thus far we can conclude that the progress made in 1984 and in the 4 years of the Eighth 5-Year Plan are a good foundation and a substantial precondition for fulfillment not only of the 1985 plan, but also of the entire Eighth 5-Year Plan in respect of all indicators.

The Integrated Plan for Socioeconomic Development of the Country has made the 1985 plan of the Ministry of Communications more precise. What is new about it is that the state planned targets do not give volume indicators--for

aggregate profit, net output or personnel strength, etc. Except for capital investment targets, limits for raw materials, supplies, fuels and energy, machinery and equipment, foreign-exchange results are approved with mandatory norms for profitability, rate of return from exports, unfinished construction and turnover rate of normed working capital. The 1985 ministry plan envisages fulfillment of all targets in the 5-year plan too. What is more, the Integrated Plan for Socioeconomic Development envisages higher norms that the counterplans must achieve. Without reducing estimated personnel strength, we must with the counterplans ensure a 5,152,000-leva increase in the volume of production (revenues, construction and installation work, commodity output) over state planned targets, and a 5,972,000-leva increase in net output with simultaneous achievement of an 820,000-leva absolute reduction of material expenditures.

The 1985 plan envisages that telephone stations will reach 1,913,000 with a density of 20.3 telephones per 100 inhabitants and 40.9 telephones for home use per 100 families. The degree of automation will reach 77 percent, while the capacity of conurbation telephone exchanges will reach 1,700,000 numbers and the telex density 7.34 telex stations per 10,000 inhabitants. Coverage of the country with the daytime medium- and long-wave first radio program is to reach 95 percent, with the first television program 90.5 percent and with the second television program 77 percent.

The volume of output, net output, production expenditures including material expenditures, personnel strength and other volume indicators will be set by labor collectives in their counterplans on the basis of approved norms for the social productivity of labor and labor productivity based on per-capita output of the entire personnel. Material expenditures (excluding depreciation allowances per 100 leva of output), profitability and return on capital are prescriptive and must absolutely be reached in the counterplans of enterprises and economic organizations. The norms will serve as criteria for compiling counterplans and for assessing the results of socialist competition and fulfillment of the 5-year plan as a whole.

Let me dwell on certain basic factors in the fulfillment of the 1985 plan.

Our first important task is to ensure efficient management and replacement of the existing material and technical base, as well as the most economical and rational utilization of materials, fuels and energy.

It must be borne in mind that material expenditures account for a great share (about 37-38 percent) in the structure of production cost, and if they are reduced without this resulting in a deterioration in the quality of communication services, a high social effect and an effect for communications will be achieved. But--I repeat--without this being done at the expense of quality!

Do we have latent reserves in this area, and what are they? In interconurbation telephone and telegraph communications more than 4120 interruptions on interconurbation channels and links were recorded in 9 months of 1984 alone (and there were also a very great many not recorded); 33 percent of the total number of faults were the result of poor construction and installation work,

and in consequence of faults and accidents operational telephone and telegraph channels were inoperative for approximately 300,000 channel-hours during the 9 months. During the same period in conurbation telephone and telegraph communications 536 faults occurred in the cables of the conurbation telephone networks and about 49,000 telephone stations were temporarily cut off, with losses from unsold traffic amounting to 3,137,000 telephone-hours. There were many failures in dial telephone exchanges, outages of wire-broadcast networks and interruptions of radio transmitters, television transmitters and television retransmitters.

These facts speak for themselves. What is bad is that we have become used to these facts, resigned to them. They have even become a norm of life. "We're all right, everything is within permissible limits." Yes, when we set ourselves low criteria and requirements, even the worst work can look good. But can we assent to such viewpoints long deep-seated and rooted in our consciousness? No, in no way. There are facts, there are outages that cannot be assessed in money. They have their social equivalent--dissatisfaction of the public with the quality of communication services. Our country is now taking the initiative again for a nationwide campaign of economies, saving and fullest utilization of materials, fuels and energy. This is one of the main immediate tasks that economic bodies must concern themselves with at once from the first days of 1985.

Our second important task is to ensure wide scope for the introduction of technical progress and to create conditions for a qualitative leap in the development of communications during the Ninth 5-Year Plan and up to 2000.

In the ministry's counterplan we must seek means, resources and opportunities for the widescale introduction of scientific and technical progress, taking into account the country's communication needs and capabilities. The new achievements of science have made possible the development of a new branch of communications--data-transfer systems, which make it possible to satisfy society's needs with new kinds of services (information transfer between electronic computers, videotex, teletex, telecopy, videophone, or about 30 kinds of new services). Between the telephone system and the data-transfer network there is taking place an interpenetration and consolidation into a unified digital communication network or integrated digital system of communications. The general trend is that for the most developed countries integration of these systems will continue at a growing pace.

We are anticipating and planning up to a 24.7-percent growth in telephone density by 1990, based on the introduction of new electronic and quasioelectronic switching systems. Eleven tandem digital exchanges with corresponding digital channels and optical lines and systems will be put into operation. The basic target during this period is for calling efficiency to reach 60 percent. The National Data-Transfer Network will be built and put into operation, with maximum adaptation for international links and readiness for interpenetration with digital telephone systems, mainly in the area of videotex, teletex, videophone, electronic mail, etc. In postal communications we anticipate the introduction of full mechanization and automation through the building of exchange and sorting centers in the main cities of countries and the adoption of automated control systems thereat.

What are the concrete problems that we shall solve in the future?

First, in 1985 we shall continue to work on the implementation of Order No 14 of the Bureau of the Council of Ministers of May 1983. Technical bids from firms for the supply of equipment will be finalized and initialed; problems in the adaptation of digital equipment to the existing analog equipment will be solved; personnel will be trained to work with digital equipment; coaxial cables will be laid; the planning and construction of projects incorporated in the program for implementation of the order will continue. In addition, the International Telephone Exchange for Sofia is to be delivered and its installation started. Work will continue on the planning of the networks in order to determine more precisely the structure of the local and tandem networks and prepare the data for the master plan.

In short, 1985 will be a preparatory year for the introduction of digital technology and for finishing up construction of the country's telephone network on the first level for the next 5-year period.

Second, in 1985 work will begin on the accelerated development of radio and television in our country--tasks of paramount importance, for which we have ready a comprehensive program. This program targets satisfaction of the public's needs to the maximum extent, with continuation of the construction of television transmitters in the decimeter range for the first television program and border regions, as well as national networks for ultrashortwave radio broadcasting, and with the construction of a stereophonic network also in the range of 87.5 to 108 megahertz.

Full coverage of the territory of the country with the "Horizon" and "Khristo Botev" radio programs on medium and short waves with maximum use of transmitter synchronization: further building of radio relay links for transmission of radio and television programs; building of an experimental cable testing area for television and radio programs, as well as for other information and for experimental transmissions of radio and television signals from a satellite. It is envisaged that a ground station will be built for space communications in the Intelsat system for telephone, telegraph and television links. Multiprogram wire-broadcast networks in the capital, okrug cities and resort and tourist centers, etc., will be expanded.

The above-indicated development will take place on the basis of the most modern engineering solutions and radio-and-television equipment. Our basic task in 1985 is to adopt a specific comprehensive program for implementation of the Council of Ministers' decree on the development of radio and television up to 1990.

Third, optical fiber will be of extreme importance for technical progress in communication technology and will result in radical changes in future communications. To evaluate its place and role in the development of the communication system as well as ascertain the operational capabilities and qualities of fiber in the real conditions under which we work, the first experimental optical link with a capacity of 480 telephone channels (38 megabits per second) will be put into operation in Sofia. Obviously our scientific research

institute, as well as all persons in the ministry who have anything to do, directly or indirectly, with this problem must work much more seriously and responsibly in 1985 in this strategic area for the country and communications. Our task is to prepare early on for the introduction of optical fiber and to assist in its mass-scale use, especially during the construction of the new networks.

Fourth, to solve quality problems, we shall have to improve metrological back-up along the lines of increasing the list of activities included in checking. This is an extremely urgent task, which we must perform at the same time we finish up the construction of an integrated system of communications control and introduce a system of wage planning, fixing and linking with the quality of communication services. Our immediate task in this connection is to ensure the procurement of the necessary measuring devices and equipment, to better organize the repair and checking of the existing measuring equipment and to organize its efficient use.

Fifth, we must seek and find additional possibility for the automation and mechanization of manual labor, especially in postal activity. We must pay special attention to further mechanization and unitization, as well as to the procurement and adoption of new material-handling machinery in communications.

The government believes that through the introduction of technical progress it is possible to guarantee a minimum 5-point growth in labor productivity over the level embodied in the state plan. Obviously, in preparing counterplans and engineering designs we must seek solutions that will guarantee us these 5 points. There is no more-correct way to perform this task of technical progress. That is why, in addition to the above-indicated five basic directions to be taken, every collective must introduce technical innovations in its own activity so as to achieve this growth at all costs.

Our third important task is to solve certain acute problems which are now holding back the effective development of communications.

What are the problems that we must solve in 1985 and during the Ninth 5-Year Plan?

In postal communications the delivery of newspapers on time and in good condition continues to be an open and unsolved problem, as do the handling and sorting of letter correspondence. The problem of mechanizing manual and hard physical labor also continues to be acute. Therefore in 1985 we must plan the accelerated development of postal activities during the Ninth 5-Year Plan, with emphasis placed on the solution of the above-indicated problems, mainly on the basis of mechanization and containerization in postal activities.

In telegraph and telephone communications the problems have been clarified, a government decision has been made, and we have specific programs and measures, too. It is crucial in the event that these be carried out.

In the area of radio and television programs have been clarified, too. We have a government decision also, as well as a program for its implementation, which we are going to carry out right away.

In the area of cable lines, multiplexing systems are continually being modernized in communications, but cable splicers continue to work with composition, tinol, the (khayva)-blowtorch and gasoline lamps, which are of inferior quality to boot. The state of mechanization in the cable lines system is extremely poor. The problem will become more acute still in 1985 and during the Ninth 5-Year Plan when the basic coaxial cable trunks will go into operation and need a high degree of technical maintenance, while this presumes not only our working with the new equipment, but also having a modern organization for its maintenance, as well as high personnel qualifications.

The above-indicated problems of the cable lines system hold true with the same force for the OUS [expansion unknown; possibly okruzhno upravlenie na suobshcheniyata, okrug communications administration], as well; there the situation is even more alarming still. That is why in 1985, under the guidance of the ministry, the state of the cable system must be completely investigated and analyzed and a resolute course taken to elevate it to a new, higher technical level and organization.

During the Ninth 5-Year Plan many kilometers of cables and obsolete tube systems must be replaced; a new, more modern structure of the organization of the cable lines system must be designed, and a start made on wide-scale mechanization of basic activities and saturation with up-to-date control and measuring technology; construction of the necessary production warehousing and transportation facilities must begin on the basis of concentration and specialization.

Telekomplekt ISO [Engineering Economic Organization]: Some of the most acute problems which we have already encountered only now coming to light are in the designing and construction that Telekomplekt ISO carries on. To begin with, owing to the sharp increase in the scale of designing and construction, Telekomplekt ISO is no longer able to shoulder the greater volume of work without the necessary reorganization. Therefore the crisis due to the shortage of qualified personnel--designers, builders and installers, splicers and other specialists will intensify sharply next year and continue to be exacerbated during the Ninth 5-Year Plan unless we take radical measures to solve these problems rapidly and urgently in 1985 at the latest.

It seems to me that the main thing in the circumstances is for us, and chiefly the key personnel of Telekomplekt ISO, to adjust ourselves to the modern "new wave." Telekomplekt ISO has hitherto worked comparatively rhythmically and caused us no acute problems. Unfortunately, at the end of the year acute conflicts arose which clearly and unequivocally showed up the actual state of affairs at Telekomplekt ISO and the abilities of its personnel to get out of the difficult situation in which they found themselves.

The result is that our most immediate and urgent task is to assist the personnel, especially managerial personnel, to reorient themselves. Self-critical and objective appraisal is an absolutely necessary prerequisite in order to find the most correct way to improve the situation. Further, with the help of the ministry and, if necessary, with other governmental bodies we must prepare Telekomplekt to make a veritable leap to a high scale of construction and accelerated rates of work, a leap in technical progress. If we tolerate delay,

even for a quarter, there is danger of complications setting in that will have an overall negative effect on the intensive development of communications. According to the 1985 plan, a total of 141 projects must be built and put into operation (116 with a limit, 20 with funds for basic repairs, and five under Order No. 254 of the Council of Ministers). No construction with bank loans will be done in 1985. The economic approach and mechanism require us very carefully and critically to improve work involving the investment process, overcoming the failures that resulted in the second half of 1984.

In 1985 there are several large underway projects such as the "Kopitoto" [Hoof] National Radio and Television Center; "Trakiya" [Thrace] coaxial cable trunk; the production and technical buildings--"Lozenets" and "Khladilnika" [Refrigerator] in Sofia, Razgrad and Vidin; the "Krasna Polyana" [Pretty Meadow] ATTs [dial telephone exchange] in Sofia; the RPTs [expansion unknown; possibly a kind of manual exchange] in Plovdiv, etc. We must give special attention to the so-called foreign-investor projects. Harmonious organization of teamwork must be brought about at the very beginning of 1985 between the Investments and Building of the National Communication System Section in the ministry and the Investor Control Directorate, while cooperation of the directorate with Isproekt IPP [Institute for Study and Design], construction and installation administrations and materials and machinery supply must be established exclusively on the contract principle, and in the event of the infraction of contracts, economic compulsion and sanctions must be sought in keeping with the economic mechanism.

Obviously, the ministry board must in the very first quarter of 1985 discuss the activity of the Investor Control Directorate as main organizer, coordinator and controller of the investment process in the communication system, with a view to decisively improving its operation and bringing it into line with the new, large tasks it has to perform in 1985 and during the Ninth 5-Year Plan.

In the area of the quality of communication services, the problems were clarified on the eve of and following the National Party Conference, and I will not dwell on these. I want to turn our attention to some important tasks which we are going to perform under the 1985 comprehensive program.

As regards the quality of communication services, in 1985 we are going to expand the adoption of automated systems for the control and maintenance of the equipment and for the administration of money-order activity; we shall strengthen the activity of dispatch systems; we shall complete the experimental introduction of an ASU [automatic control] subsystem for dissemination of the press; we shall improve quality control, giving priority to high-efficiency ways of control, etc.

The projected quality measures must be concretized in 1985 and included in the work plans of all communication labor collectives so that they become, so to speak, the object of everyday attention.

The fourth important task is to ensure high quality of labor as the main element of efficient production.

Under conditions of the accelerated introduction of the achievements of scientific and technical progress, high professional qualification of workers is one of the basic factors in the successful realization of the party's policy of intensification of the economy and a sharp improvement in the quality of output and services. In addition to general upgrading of personnel qualification, we must form in every okrug administration and specialized enterprise a nucleus of highly qualified and creatively thinking personnel that will be a mainstay for the introduction of scientific and technical progress and a constant vehicle of high-quality labor.

Our general problem is to answer the following question at the very beginning of 1985: What kind of brigades are we going to have in communications and how is their activity to be organized? It is especially important to find an appropriate way of economically associating individual brigades and brigade sections, regardless of the economic units in which they work, when their activity is interdependent and interrelated. The communication system needs its own brigade organization with a specific structure for communications and its own prescriptive document which will regulate not the activity of a brigade in general, but that of a communication brigade. In one sentence, we need a concrete draft of a brigade organization and we must have it at the very beginning of 1985 so that we can introduce it and get results in the last year of the 5-year plan at the latest.

What must we have in mind when we organize the brigades? The technological process, interrelationship and interaction among individual workplaces must be investigated, and the scope of the brigades must be defined on this basis. Brigades must be set up not only as production and economic--but also as social--units, as primary labor collectives. Especially important for their proper activity is a precise definition of the interrelationships between them and the management of the enterprise, with the contract form being used.

Considering how many complex technical, production and social questions we have to solve during the Ninth 5-Year Plan, we must take a resolute course also of improving work with young people. The responsibility for carrying out the technical revolution in communications through the introduction and creation of new equipment and technologies will fall on the shoulders of the present younger generation.

Despite the favorable results achieved, I believe that the repeatedly indicated failings in the efforts of economic managements for a comprehensive improvement of conditions for training and realizing the potential of young people are being overcome slowly. As a result, there is a certain slowing down of the pace at which youth problems are being solved. Therefore, the preparation and formulation of comprehensive programs for young people during the Ninth 5-Year Plan must begin in 1985 at all levels of administration within the Ministry of Communications, with necessary resources to be approved in the Youth Activity sections. The programs must take into account not only the goals and tasks of economic managements with young workers and specialists, but also their obligations within the limits of their jurisdiction and opportunities for improvement of the conditions for training and realizing the potential of young people.

Our fifth important task is to improve the work of the collective administrative bodies.

Now that the labor collective has become the proprietor of socialist property, the role of collective administrative bodies such as the economic council, etc., is growing markedly. It is of special importance in this event for the work of the council that materials be obtained in advance so that every member has an opportunity to familiarize himself thoroughly with them, get the opinion of the collective that he represents, and prepare himself for active participation rather than mere attendance at the session. In organizing the work of the economic council, the directors must seek the active assistance of the trade-union organization. A number of questions from among the activity of the enterprise should be discussed and decisions made regarding them in joint sessions of the economic council and the trade-union committee.

To improve the organization of the work of the economic councils, first of all planning of the work of the councils must be improved. This should be done every 6 months. The questions to be taken up must be prepared thoroughly, with an assessment made by means of a critical analysis of the state of the question from the viewpoint of the new criteria and requirements and with generalized assessments, conclusions and proposals for decisions made on this basis. Every decision must be backed up with resources if this is necessary and according to contract. The chairman of the council must stimulate the members to speak out, creating a situation for the clash of opinions so as to study all aspects of the problem, in its entirety, so that it is completely clear what is decided, how it is to be executed, by whom and within what time limits.

In 1984 we held a number of important meetings with okrug and obshtina people's councils. We also adopted appropriate programs for the development of communications in several okrugs and in Sofia. The programs that were adopted are, as you know, only preplan documents which have to be updated every year after capital-investment limits and funds for the Ninth 5-Year Plan are determined.

What must the OUS directors bear in mind in their work with territorial state and economic bodies?

To begin with, in formulating the master plans of conurbations and in setting up conurbation systems, housing regions and industrial zones must plan and build communication lines with our assistance and participation, of course. Very often state and economic territorial bodies submit unwarrantably large requests for the development of communications, and OUS directors assist them with their requests. We must make it clear that in the future we can invest funds only within the limits that are allocated enterprise by enterprise, and nothing more!

In the future we must work still more closely with the councils, especially as regards the prevention of cable breaks and the provision of power without electrical interference for especially important communication equipment, so that territorial communication systems and their individual elements will function efficiently.

In 1985 communications enter upon a new phase in their development--a phase with a high rate of technical progress and a new qualitative leap that by the year 2000 will bring the Bulgarian People's Republic up to the level of the countries most developed communicationswise. To us fall the great honor and high responsibility of preparing communications and, to be more precise, of training those employed in communications for this leap. What kind of a leap this will be--small or great, successful or unsuccessful, difficult or less difficult--will depend on how we do our job in 1985.

I think I will not be mistaken if I say that the foundation of this leap was laid by Order No 14 of the Bureau of the Council of Ministers and the decree of the government on the development of radio and television. These documents became possible owing to the concrete assistance and personal involvement of our first party and state leader--great strategist and implementor of the development of a modern prospering socialist Bulgaria--Comrade Todor Zhivkov. Thanks to his great wisdom, his statesmanly and economic experience, he judged at its merits the true state of communications in our country and pointed out the necessity of developing them at an accelerated rate on the basis of the application of electronics and technical progress. Only when we take a clear, correct and accurate bearing on the future can we more realistically judge the present and foresee and invest for what has to happen tomorrow! And the near future for us is 1985 and the Ninth 5-Year Plan! May they be successful!

6474

CSO: 5500/3011

HUNGARY

BRIEFS

CITIZENS BAND RADIO FEES INCREASED--From 1 February 1985 the Hungarian Post Office will increase the annual frequency utilization fee for Citizen's Band radio equipment operating in the 27 mhz band and the payment of the fees will be made compulsory for private persons as well. The annual frequency utilization fee will range from 240 to 1,440 forints, depending on the number of channels and the transmitting capacity of the equipment. The Post Office will send detailed information about the fees and other matters to every CB subscriber. The tariff change will serve to offset the cost of measures needed for limiting and ending reception disturbances. [Text]
[Budapest Domestic Service in Hungarian 1730 GMT 31 Jan 85]

CSO: 5500/3014

ARGENTINA

BRIEFS

LINKING SYSTEM INAUGURATED--Today Buenos Aires Domestic Service dedicated its nationwide linking system that uses the ENTEL [National Telecommunications Enterprise] national network with its microwave, coaxial cables, and satellite connections which will link all the domestic service radio stations. [Excerpt] [Buenos Aires Domestic Service in Spanish 1600 GMT 15 Feb 85]

CSO: 5500/2045

BAHAMAS

BRIEFS

MICROWAVE COMMUNICATIONS--A new 260-foot microwave tower was constructed last month at the Soldier Road Radio Station Compound of the Bahamas Telecommunications Corporation (BaTelCo). The tower is part of a project to extend a microwave system from George Town, Exuma, along the Exuma Cays, on up to New Providence and across to Green Castle, Eleuthera. The microwave system will provide improved communications to Rolleville, Barratarre, Little Farmers Cay, Black Point, Staniel Cay and Highbourn Cay in the Exuma Chain. The Bight and Arthur's Town, Cat Island will also be linked into the system. When completed, the system will provide ample high quality circuits to accommodate telephone traffic generated in the Southeast Bahamas by the Troposcatter Radio Systems currently being installed at Crooked Island, Acklins Island, Ragged Island, San Salvador and Mayaguana. [Excerpt]
[Nassau THE TRIBUNE in English 5 Feb 85 p 6]

CSO: 5540/19

BERMUDA

TELCO INTRODUCES TWO NEW DATA COMMUNICATIONS SYSTEMS

Hamilton THE ROYAL GAZETTE in English 24 Jan 85 p 15

[Text]

The Bermuda Telephone Company will today unveil two new high-speed data communications systems as part of a drive to improve services offered to computer users.

The systems are to be announced this morning to about 60 local data service customers attending a symposium at Telco's Victoria Street headquarters. The customers include hotels, banks and other corporate users as well as Government.

Telco executive Mr. Eugene Saunders, who is to address the meeting, said yesterday that the new services, Datanet and Dataport, will be ready for use in April this year.

He described Datanet as a data network for low volume users and said Dataport would be more suitable for companies with high volume data needs.

He said that advances in new electronic technology will allow the networks to use Telco's existing copper cables, which are in place throughout the Island, and would not require new cables to be laid.

"The difference is that we will be using dedicated data lines rather than voice and data lines," said Mr. Saunders, who is president of the Bermuda Computer Society.

He said Datanet customers will need to rent or buy a "data unit" from Telco in order to access the network. The purchase price is still being worked out, but the rental is expected to be about \$50 a month.

He added that both services will be linked to overseas networks later this year and said the advent of Datanet and Dataport marked the development of Telco as an information company, rather than just a telephone company.

CSO: 5540/017

BOLIVIA

BRIEFS

NEW RADIO STATION--A new labor union radio station will be inaugurated in Santa Cruz on 8 February. It is called Radio Petrolera, and it will be the mouthpiece of the Santa Cruz workers. [Excerpt] [La Paz Radio Illimani Network in Spanish 1700 GMT 7 Feb 85 PY]

CSO: 5500/2046

BRAZIL

PERU, PARAGUAY INTERESTED IN BRASILSAT SERVICES

PY081440 Madrid EFE in Spanish 1352 GMT 8 Feb 85

[Text] Brasilia, 8 Feb (EFE) -- Peru and Paraguay are already studying the possibility of leasing the services of the first Brazilian satellite, which will be launched into space today from the Kouru base in French Guiana.

Peruvian Transportation and Communications Minister Francisco Aramayo will watch the launching of the Brasilsat-1 from Brasilia, together with Brazilian President Joao Baptista de Figueiredo, at the auditorium of the Communications Ministry [Minicom].

Minicom spokesman Arthur Aymore has stated that Peru is studying the possibility of leasing the communications channel of the first Brazilian satellite. He added that Paraguay will also send a delegation to the country with the same objective as Peru.

Manufactured by the Brazilian state enterprises the Brazilian Telecommunications Company and the Brazilian Telecommunications, Inc., in consortium with the Canadian company Spar Hughes, the first Brazilian satellite will be launched by the French rocket Ariane-3 to a position 33,800 km above the earth, at the Equatorial line, just above the Amazon.

Equipped with 24 radio channels, it will allow 12,000 simultaneous phone calls from any point in the country, or the simultaneous transmission of 24 television programs.

The satellite, which cost \$61 million, will save Brazil the successive payment of more than \$7 billion, an amount spent last year by Brazil on the rent of Intelsat-2 services.

CSO: 5500/2040

BRAZIL

'ARIANE' ROCKET LAUNCHES TWO SATELLITES

'Ariane' Progress

LD090053 Paris Domestic Service in French 2332 GMT 8 Feb 85

[Correspondent's dispatch from Kourou; intercepted in progress]

[Text] "Ariane" is doing well, and for the first time perhaps in the history of European space there were no red lights at the Kourou base.

Everything went ahead according to plan, as one says in space matters. It is now 9 minutes and 27 seconds since the rocket took off, and in 3 minutes we shall know exactly if it is correctly in orbit as it will be established [acquire], as they say, by the American (?Ascension) station which is in the middle of the Atlantic. It will tell us if Ariane is correctly in orbit.

Further On Ariane Satellites

PA090250 Paris AFP in Spanish 0209 GMT 9 Feb 85

[Report by Serge Berg]

[Excerpt] Kourou, French Guiana, 8 Feb (AFP) --- The European launcher Ariane-3 is basking in the limelight of success today after successfully launching two satellites at the same time, the Brazilian Brasilsat-1 and Arab Arabsat-1.

That Ariane's 240 tons took off according to schedule, down to the exact minute and hour planned a year ago, was stressed by Frederick D'Allest, director general of the French Center for Space Studies.

Ariane's three sections functioned perfectly, especially the third one -- comprised of liquid oxygen and hydrogen -- with the 1,200 kg Arabsat satellite and the 1,100 kg Brasilsat in its top section. Ejection speed was reached at an altitude of 210 km; 3 minutes later, Arabsat separated from the rocket and turned toward a geostationary orbit. It was followed by the Brasilsat 1 and 1/2 minutes later. In several weeks the two satellites will reach their geostationary orbits: the Arabsat's above Zaire (Africa) and the Brasilsat's above Central Brazil.

Parameters Released on Satellites

PA090150 Paris AFP in Spanish 0119 GMT 9 Feb 85

[Text] Kourou, French Guiana, 9 Feb (AFP) -- The Kourou Space Center in French Guiana has revealed that the placing in orbit of the Arabsat-1 and Brasilsat-1 satellites was carried out with great precision. According to the first parameters received, the figures are as follows:

-- The perigee (lowest point) is 197.9 km instead of the planned 200 km, which represents a difference of under 2.10 km.

-- The apogee (highest point) is 36.042 km instead of the planned 35.956 km; consequently, it is 86 km off the calculated location.

-- The inclination over the equator is 7.1 degrees instead of the scheduled 7 degrees, which represents a tenth of a degree difference.

The brilliant operation highlights the crew in charge of the Ariane space, and "confirms Ariane's high degree of reliability and precision."

"This launcher appears to be the most appropriate and competitive means of transportation for placing commercial satellites in a geostationary orbit."

CSO: 5500/2042

CHILE

EXPORT AGENCY CREATES TRADE OPPORTUNITIES DATA BASE SERVICE

Santiago EL MERCURIO in Spanish 28 Jan 85 pp B1-B2

[Text] Exporters in any of the 12 regions in the country who subscribe to the national Telex-Chile network will have access from now on to the Trade Opportunities Data Bank that PROCHILE [Institute for Export Promotion] has in the capital.

This new service was announced to "Economia y Negocios" by people from PROCHILE. They explained that, in the first stage, the exporters who use it will obtain all the data on trade opportunities abroad. Later they will also receive market profiles.

PROCHILE's Trade Opportunities Data Bank now has more than 3,000 references that correspond to information obtained by the Trade Attaches Network and PROCHILE collaborators in 29 countries around the world.

Importers from different countries also regularly send information to PROCHILE.

Immediate Response

The new service based on Telex will be especially useful to the regional exporters who will now have the same facilities and options to obtain trade information as the exporters who operate in the metropolitan area.

PROCHILE sources revealed: "This represents notable progress from the technological point of view and demonstrates the systems engineering ability of our country."

They explained that, in practice, the exporter interested in information at the bank can send his questions through Telex and receive an immediate answer on trade opportunities and the identification of enterprises or importers for his products.

The new service is an extension of the one now functioning at PROCHILE called the Selective Distribution System of Trade Information. It went into operation at the end of 1983 through an agreement signed between PROCHILE and the DICOM enterprise.

This entails automatic weekly distribution of all the information that PROCHILE has obtained through its commercial network abroad to the exporters through a modern computer system.

That service is free. In addition to trade opportunities, it includes a bulletin on market information that contains brief trade profiles on each exporter's products of interest.

Chile in the Forefront

According to its directors, this new system inaugurated by PROCHILE is unprecedented in Latin America. It places the export promotion organism in the forefront in timely and quick trade information to directly benefit the sector.

They emphasized that this substantially improves the scope and timeliness of the information since it can be obtained simultaneously by any exporter in the country the day after it has been received at PROCHILE.

According to unofficial estimates, the new service could be used immediately by about 1,000 exporters who have Telex.

It was said that this modern service represents the result of a joint effort between the official organism as a public entity and the private sector since DICOM, Telex-Chile and the VTR enterprise also participate.

7717

CSO: 5500/2041

CHILE

TELEPHONE RATE INCREASE TO ENABLE SYSTEM EXPANSION

Santiago LA TERCERA DE LA HORA in Spanish 15 Jan 85 p 7

Excerpts According to a notice published by the CTC Telephone Company of Chile last December, the fixed monthly rate per subscriber line went up from 497 pesos to 656 pesos (up 32 percent) for residential service, from 1,122 pesos to 1,309 pesos (up 16.7 percent) for basic commercial, and from 2,472 pesos to 2,596 pesos (up 5.02 percent) for trunk PABX.

Variable charges are kept at 0.204 peso for calls during low-rate hours, while the high-rate hour charge will rise from 0.516 to 0.646 peso (up 25 percent).

On the other hand, the variable charge for each minute will be kept at 0.179 peso during low-rate hours and will go up from 2.435 pesos to 3.043 pesos (up 25 percent) per minute during high-rate hours. The company also instituted a peak-rate schedule calling for 3.653 pesos per minute, in other words, an increase of 50 percent compared to the prior high-rate schedule.

The low-rate schedule is in effect from 0000 to 0900 and from 2000 to 2400. The high-rate schedule is in effect from 0900 until 2000 and the peak rate is in effect from 1000 to 1200 and from 1600 until 1700.

Domestic long-distance and long-distance direct dialling services will not be changed as regards their earlier rates and international long-distance will go down 10 percent.

Losses

Now, the changes are those that together come to a rise of 11 percent in rates as compared to the company's weighted increase of 15 percent. As was explained to this newspaper, in the Ministry of Economy, this is because this service consists of several parts and the makeup of the monthly telephone expense consists of two-thirds for local service and one-third for long-distance, mostly domestic.

In its statements of results for budgeted services in 1984, the telephone service of the CTC shows losses of 558 million pesos in flat income (local telephones and recorded calls) and 706 million pesos in metered

service; these losses are financed by surpluses coming from manual and direct-dialling long-distance services since other earnings in the amount of 2,116 million pesos are used for the payment of dividends and distribution of profits.

Extension of Service

In summary, it was added, what local users pay in the form of rates does not finance the expenses incurred by the company and this only postpones the hopes of 150,000 persons who have applied for this communication service.

Now, with this overall 11-percent rate adjustment, it will be possible to re-evaluate the abandoned service extension projects which have been held up because they did not meet any profitability criteria.

The losses that continue to exist are within a rather manageable range; there is a conviction that the adjustment will move the company toward a point of balance in its economic operations and the company will be able to look forward to moderate profitability in rather short-range terms.

Avoidable Expense

In any case, as regards the rise in rates, the increased cost to the user can to a great extent be avoided, provided the major increases are spread out over the number of calls and their duration during high-rate hours and the recently created peak-time of 3 hours.

In a recent study covering 75 countries, Chile shows up as the country with the highest price per installed telephone but the lowest utilization figure, in other words, in terms of the value of telephone company rates. As for meeting the country's requirements, with its 600,000 working telephones, Chile is far from other countries.

5058

CSO: 5500/2033

PERU

BRIEFS

PLAN TO USE BRASILSAT--Transport and Communications Minister Francisco Aramayo Pinazo yesterday said that the small satellite [earth station] Domsat [as heard] will begin to be installed in 2 months in the Amazon jungle. When complete, the satellite will permit the total interconnection of that Peruvian region through the powerful Brazilian satellite, Brasilsat. The minister also disclosed that during his trip to Brazil it was proposed that Peru lease Brasilsat for the Peruvian Amazon region. He said that this is economically advantageous for our country. [Text] [Lima Radio del Pacifico in Spanish 1200 GMT 15 Feb 85 PY]

CSO: 5500/2043

REGIONAL AFFAIRS

BRIEFS

IRAQI-JORDANIAN MICROWAVE PROJECT--Amman, Jan 29, INA--A microwave project linking the Iraqi and Jordanian capitals will be officially inaugurated next Sunday when the two countries' ministers of communications exchange words through the new line, a Jordanian responsible source said. The source told INA's correspondent here today that the project will further telephone services between Jordan and Iraq and enable the two countries to exchange TV and cultural programmes directly. In the first phase of the project, in which experimental work started last night, Iraq will provide 120 channels for telephone and telex services, a figure that will reach over the second phase 990 channels, including an intermediary one for connecting Iraq with other Arab countries. [Text] [Baghdad INA in English 1430 GMT 29 Jan 85 JN]

CSO: 5500/4506

AFGHANISTAN

BRIEFS

AFGHAN RADIO, TV DEVELOPMENT--Construction and installation work on an educational and training radio TV studios began today. The construction work on the studios, which will be carried out by the Department of Construction of the Ministry of Public Works, is due to be completed by the middle of 1364 [Afghan year beginning on 21 March]. A spokesman of the construction department said that with the completion of the educational and training radio TV studios, new changes will occur in the radio TV educational, health, literacy and other similar programs. [Text] [Kabul Domestic Service in Pashto 1530 GMT 17 Feb 85 LD]

CSO: 4695/2

BAHRAIN

TRANSPORT MINISTER COMMENTS ON ARABSAT USE

GF070532 Manama GULF DAILY NEWS in English 7 Feb 85 p 1

[Excerpt] The Arab world's first satellite will be launched tomorrow but a cash crisis means only Bahrain and Jordan will be able to use it. They are the only countries with the vital earth-based tracking stations and it will take another BD [bahraini dinars] 25 million to set them up in other countries.

Bahrain Transport Minister Ibrahim Humaydan said rising costs since the project was planned had led to the budget shortfall. "There are two ways of solving this," he said. "The first is for member countries to pay more to the Arab Satellite Communications Organisation, and the other is to take a loan from the banks."

Arabsat 1--the Arab world's first satellite--has been jointly funded by 22 Arab League countries. Mr Humaydan said Bahrain has paid its BD4 million share, and the station at Ra's Abu Jarjour was now ready for service. "The launch will not be affected by the lack of money," he added.

A source close to the project who asked not to be named said: "It could take years for all the stations to be built. What they should have done was build them first, make sure everyone could use the satellite and then launch the thing. As it is, Arabsat will be floating around up there vastly under-used."

He said banks would have to be approached for funding in the case of some countries, because it was unlikely the Saudis--the main backers--would be prepared to chip more than their share into the kitty.

CSO: 5500/4508

INDIA

SEVENTH PLAN ENVISAGES TELEPHONE IMPROVEMENTS

Bombay THE TIMES OF INDIA in English 12 Jan 85 p 5

[Text] Bombay, January 11--The seventh plan aims at providing telephone connections practically on demand with an outlay of Rs 13,768 crores, the Union minister of state for communications, Mr Ram Niwas Mirdha, said here today.

Addressing a news conference, Mr Mirdha said that the seventh plan proposals were under the consideration of the planning commission and depending on the final outcome its objective would be reviewed. The plan emphasises revamping, modernising and expanding the services in keeping with the Congress party manifesto.

He said that plan's main thrust would be towards developing rural telecommunications and hopefully, most villagers would be within a distance of five kilometres from a telephone.

To achieve this purpose, 23,000 long distance public telephones, almost equal to the number of such telephones installed since independence would be added during the plan, he said. These telephones, he said, would use modern technology such as multi-access radio.

New Phone Factories

There would be integrated digital networks for semi-urban/rural areas in 75 selected locations "coterminus" with the boundaries of one or more revenue districts in the country. Progressively, this system would be extended to all districts, he added.

The number of satellite earth stations would be increased from 32 to over 100 by the end of the seventh plan. Two new telephone factories at Mankapur in Uttar Pradesh and Bangalore for the manufacture of 500,000 lines each of digital electronic switching equipment were on the anvil, he said.

The Mankapur plant is in the process of getting ready and is expected to attain full capacity before the end of the seventh plan.

Schemes for starting two more factories of 500,000 lines each during the plan period were also being considered. Similar steps were also being taken to set up a unit for starting a digital transmission equipment and also for fibre optic cables.

The minister said that the number of direct exchanges will increase from 2.9 million lines at the end of the sixth plan to at least 5.8 millions by the end of the seventh plan. "With this substantial increase it should be possible to provide a telephone connection within six months after making an application at most places," he said.

A special "upgradation" programme covering Bombay, Delhi, Madras and Calcutta which constitute a third of the total number of telephones in the country would also be given equal importance. Introduction of in-house computers in these four metropolitan cities and other important centres would take over jobs such as directory inquiry and billing.

Telex Capacity

Apart from these, telex capacity would also be more than doubled during the plan period increasing the total number of telex lines from around 44,500 lines at the end of the sixth plan to 99,500 lines at the end of the seventh plan.

Special importance he said would be given to INSAT capabilities to provide high-quality circuits between important urban centres and for giving instant highly reliable services to remote and interior locations.

The minister said that postal services were being expanded as the traffic was increasing at a considerable rate. "While I stress the new technology, I also call for a new work ethos," he stressed. With the expansion of postal facilities, mechanisation would be introduced, but this he assured would not result in retrenchment.

Phones in Cars

Paging system: Answering a question, he said experiments were in progress to see if cars could be provided with telephone connections.

Manpower requirements: He said that an assessment was being made to review manpower needs in various departments. In the overseas communication service, he said, there were vacancies for engineers. He has suggested to the planning commission to review manpower requirements in the telecom area.

"I welcome the interest shown by the press to our shortcomings and I have asked officers in various departments to take note of them," the minister said. He also stated that at the same time the press and the public should be aware of some of the constraints faced by his department.

CSO: 5550/0032

INDIA

BRIEFS

NEW STD FACILITY--Subscriber trunk dialling (STD) facility in the temple town of Tirumala was commissioned on Tuesday by connecting it to the all-India trunk automatic exchange network. With this facility, the subscribers can make calls to any place in the country where incoming STD facility is available. Incoming STD facility was already available in the temple town. [Text] [Bombay THE TIMES OF INDIA in English 3 Jan 85 p 9]

RAJIV BROADCASTING POLICY--New Delhi, Jan 4--The Prime Minister today asked the Information and Broadcasting Ministry to develop a national radio network and make more purposeful use of television and radio to promote development, reports PTI. Reviewing the working of the I and B Ministry, Mr Gandhi suggested that the proposed national radio network could give news and serious programmes round the clock. The Prime Minister said that the TV and radio should consider ways and means of improving the quality of their programmes and bringing about greater balance between the national and regional cultures. The overall emphasis, he said, should be to make the programmes more socially relevant. The Prime Minister said the two media should make efforts to see that socially important messages reached the people in their own languages. Referring to the vast hardware expansion that had taken place in the Ministry recently, Mr Gandhi said it should be matched by equally good programmes. The Prime Minister emphasized that more community television sets should be located in villages so that the rural people got the benefit of the programmes in fuller measure. [Text] [Calcutta THE STATESMAN in English 5 Jan 85 p 9]

MID-1986 SATELLITE LAUNCH--Lucknow, Jan 6 (UNI)--Indian earth scientists must gear up to exploit the digital image processing system which is ideal for extracting information from the spectral and spatial content of the remotely sensed data, according to Dr Baldeo Sahay of the Indian Space Application Centre at Ahmedabad. In an invited talk in a symposium on "Application of remote sensing in earth science" at the Indian Science Congress here today, Dr Sahay said digital image processing was an important tool for geological remote sensing. The valuable experience and insights gained by launching Bhaskara-I and two satellites and its data utilisation had encouraged the country to develop a second generation of Indian Remote Sensing Satellites (IRS). The IRS-I was scheduled to be launched around mid-1986, he said. Dr Sahay said the main objective was to provide

remote sensing data inputs into a national natural resources management system (NNRMS). The IRS-2 mission was also under consideration, he said. Dr Sahay said major breakthrough was expected in getting lithological information through the use of imaging spectrometres, synthetic radars, operating at different frequencies, will provide better structural geological information and help in undertaking tectonic set-up in the area. [Text]
[New Delhi PATRIOT in English 7 Jan 85 p 6]

CSO: 5550/0031

IRAN

OVER 5,000 TELEPHONE NUMBERS DISTRIBUTED IN EAST AZARBAIJAN

Tehran BURS in Persian 10 Dec 84 p 3

[Text] Through the efforts of the employees of the General Office of Communications of East Azarbaijan Province, more than 5,890 new telephone numbers have been distributed to applicants during the first eight months of the current year. Furthermore, the installation of 15,400 automatic and 180 semi-automatic telephones has been completed. In addition, another 2,000 telephone numbers are in the process of being installed.

The general director of communications of East Azarbaijan Province in an interview with the IRNA correspondent, while making the above-mentioned statement, went on to say: "During the current year the communication offices of 26 villages in different parts of the province also have been opened for operation. In addition, the automatic telephone centers of Ajab Shir, Malekan, Bostanabad, Hadi Shahr and Torkaman Chay, with a total number of 6,600 telephones, have become operational. Furthermore, the construction of facilities and the installation of automatic telephone systems of Sarab, Germe, Jolfa, Gavakan and Pileh Savar, with a total of 8,000 telephone numbers, have been completed. In a like fashion, the construction work and installation of telephone lines for the districts of Khosrow Shahr and Mamaqan is underway." He went on to add: "The installation of the cable lines for most of these centers have been completed or are being carried out by the responsible engineers of the communications department of the province. During the same period the construction of 37 new communication buildings for the installation of small village radio stations and the installation of 200 new telephone numbers for these villages also have been completed. Additionally, between 40 to 86 percent of construction and installation work of microwave facilities have been completed."

He added: "The automatic telephone center of Tabriz with a capacity for 10,000 telephone numbers and other necessary equipment is close to completion and will become operational by next year."

He went on to say: "The plan for the installation of a microwave system in Moghan region with the cooperation of Voice and Vision of the Islamic

Republic is underway. After the completion and operation of this plan, the majority of the northern border districts of East Azarbaijan will come under the cover of the Voice of Vision networks."

The general director of communications of East Azarbaijan added: "Along with honoring the 'Week of Unity', eight communication offices of as many villages have been inaugurated. In addition, the central automatic telephone system of Mianeh township, which has only 3,000 telephone numbers, will be increased to 5,000."

12719

CSO: 5500/4714

IRAN

ADDITIONAL RAIL LINES, REPAIR PROJECTED

Tehran KEYHAN in Persian 6 Jan 85 p 22

[Text] For the first time concrete railroad ties will be used in the rail lines of the Islamic Republic of Iran's railways.

Mr Nejad Hoseynian, minister of roads and transport, in an interview with the CENTRAL NEWS UNIT correspondent, while announcing the above-mentioned statement also added that one of the problems facing our railway system is that all of our rail lines have a single set of tracks. This creates many limitations on the use of our railroads, limiting the daily use of our existing rail lines to only 21 to 14 times.

He went on to say: "Therefore, one of the fundamental measures which is going to be followed by the railway organization is the consideration to add new lines to the present Tehran-Qom rail lines. Because this line serves as the terminal for the southeastern railroad, an extra amount of cargo must be carried on this section of the rail lines. Furthermore, in the near future, God willing, the Bafq-Bandar 'Abbas railroad will become operational and add more burden to these existing already overloaded rail lines. All things considered, our brothers are thinking of upgrading the capacity of these rail lines by adding a new set of tracks alongside the existing ones."

The minister of roads and transport further state: "The initial plan calls for two sets of tracks between Tehran and Qom. Construction of this end of the rail lines from Tehran has already started but the Qom terminal is yet to begin its construction while the Roads Construction and Development Organization is trying to complete design and planning work on the remaining line. The design and planning of 17 or 19 kilometers has already been completed. Naturally, after these people set up their necessary workshops, work will begin on that end of the new railroad system." He also added: "Along with this program certain plans are under consideration to enlarge these stations to increase the capacity of the stations serving these lines. Furthermore, after the addition of the new set of tracks and the use of stronger and more durable reinforced concrete railroad ties, these lines will be capable of handling a larger volume of traffic and much heavier cars. As a result, there will be a 60 to 70 percent increase in the total capacity of the rail lines."

The minister of roads and transport, regarding the repairs and improvement of the railroad network stated: "The matter of reconstruction of the rail lines, which are nearly three thousand kilometers long and have an average life of 40 to 50 years, has not received proper attention in the past. Consequently, because of negligence in the past many problems have been created for this system. In order to repair the damage our attention is focused on two axes--one is the axis of Tehran-Mashhad, of which nearly 500 kilometers ought to be reconstructed and up to now 300 kilometers have been repaired. Another axis is Tehran-Mianeh, of which the Karaj-Tehran section is being reconstructed and nearly 20 kilometers have already been completed. In a like manner, 70 kilometers of the section between Qazvin and Mianeh have been completed. Here it should be noted that reinforced concrete railroad ties which are made by Andimeshk Railroad-Tie Factory have been used in the reconstruction of this new axis. This is the first time that this type of railroad ties has been used in the Iranian railway system. These ties are stronger and last much longer--as a result freight trains will be able to travel at a faster speed." Finally, the minister of roads and transport said: "The issue of repair and improvement of the lines has caused a situation which does not allow the railroad system to give the kind of service which is expected by the people. That is to say both the Mashhad-Tehran and Tehran-Mianeh axes are closed daily for 5 to 6 hours."

12719

CSO: 5500/4714

IRAN

BRIEFS

TV RELAY COMMISSIONED--According to a Central News Unit report, with the efforts and research of the group for building and maintenance of the Yazd television broadcasting center the relay station at Taft town has been given an additional 10 watts power to enable the people around that area to watch the television broadcasts of Tehran television through Yazd. This will enable the people to watch the second network programs. The relay booster became operational 19 February. [Text] [Tehran Domestic Service in Persian 0330 GMT 20 Feb 85 GF]

CSO: 5500/4719

INTER-AFRICAN AFFAIRS

BRAZZAVILLE HOSTS URTNA GENERAL ASSEMBLY MEETING

Satellite Discussion Planned

AB251624 Dakar PANA in French 1215 GMT 25 Jan 85

[Text] [Dateline indistinct] (ACI/PANA)--Brazzaville will host from 28 to 30 January 1985 the 25th session of the General Assembly of the African National Radio-Television Union (URTNA). During the session, several topics will be discussed, including that of direct satellite broadcasting. The 1985 draft budget of the Union is also expected to be adopted by participants comprising the 41 URTNA member countries, 9 associated countries, 29 representatives of the international organizations and 9 observer countries.

Prior to the meeting, Charles Goma-Mby, permanent undersecretary at the Ministry of Information, Posts and Telecommunications, talked to the press about the preparations for the meeting in Brazzaville on Wednesday. Mr Goma-Mby said on the occasion that a competition to choose the best program schedule for the "URTNA-84 Prize" and a colloquium on African music will be organized jointly in Brazzaville by the International Council of Music, UNESCO, and the URTNA.

The session of the union is the second to be held in Brazzaville, the first general assembly was held in 1969. The URTNA, which is one of the oldest African organizations, was set up in Tunis in 1962. Its aim is to promote African unity in the field of information. The URTNA's headquarters is in Dakar.

Monitoring Service Advocated

AB281837 Dakar PANA in French 1626 GMT 28 Jan 85

[Excerpts] Brazzaville, 28 Jan (ACI/PANA)--Deliberations of the 25th general assembly of the African National Radio-Television Union (URTNA) opened on Monday in Brazzaville under the chairmanship of Congolese Prime Minister Ange Edouard Pongui and in the presence of Christian Gilbert Bembet, Congolese minister of information and posts and telecommunications. Nearly 120 participants from the 41 member countries and the 9 associate regional members are taking part in this assembly. Also present at the meeting are Marcel Ndjione and Francois Itoua, respectively president and secretary general of URTNA.

During this annual session, which ends on Wednesday, URTNA members will essentially discuss the theme: "Direct Broadcasting by Satellite." They will also discuss the application for membership presented by the CAR and Madagascar; the adoption of the 1985 draft budget; and the selection of members of the jury for "The 1985 URTNA Prize" are also on the agenda of the meeting.

The meeting will also have to appoint a director for the Inter-African Rural Radio Studies Center in Ouagadougou. Among the 15-point agenda figures the revision of the provisions of the Union in order to cope with the current financial difficulties arising out of the economic crisis ranging in the active 41 member states.

In a speech at the opening session, the president of URTNA stressed the important role radio and television plays in the economic, social and cultural development of the continent. He therefore expressed his Union's commitment to work hard to ensure that African masses are educated and united around major objectives.

According to the Congolese Minister of information, emphasis "during this 25th assembly, it will not be on giving unnecessary speeches but on the need to act and arrive at decisive conclusions." He expressed the wish to see a monitoring service in radio and television created at the continental level in order to save the African people from "consuming" foreign programs of harmful taste.

The last session of the assembly was held in Dakar in February 1984 and URTNA itself was created in 1962.

CSO: 5500/79

LIBERIA

BRIEFS

FRG TECHNICAL ASSISTANCE--The West German ambassador to Liberia, Hans Helmut Freundt, has disclosed that a representative from the German Technical Assistance will visit Liberia shortly to evaluate the LIBERIAN NEWS AGENCY projects. He expressed optimism that after the visit his government will assist in operating the Ministry of Information photo department. H. H. Freundt made the remark over the weekend when he presented 11 motorbikes to the Liberian News Agency, LINA, on behalf of his government. This, according to the Liberian News Agency, was done under the technical agreement between the Liberian and German Governments to operate the agency. Ambassador Freundt said that the presentation was another step forward in the bilateral cooperation between Liberia and West Germany. He said since LINA was established in 1978 as an independent agency under the Ministry of Information, it has developed into a valuable entity over the years and congratulated employees of the agency for their hard work. Information Minister Carlton Karpeh, who received the motorbikes, lauded the German Government for its continued support to the LINA project. [Text] [Monrovia Radio ELWA in English 1710 GMT 28 Jan 85]

CSO: 5500/83

MALAWI

BRIEFS

SATELLITE STATION MODIFICATIONS UNDER WAY--MODIFICATIONS to the smaller earth satellite station at Kanjedza are underway at present. The work, which began on January 15, will continue for two weeks, the Postmaster General says in a press release. "It is hoped that the modifications will not have an effect on subscribers wishing to make international telephone calls," the PMF says. [Excerpt] [Blantyre MALAWI DAILY TIMES in English 21 Jan 85 p 3]

CSO: 5500/84

MOZAMBIQUE

BRIEFS

ITALIAN TELECOMMUNICATIONS ACCORD--The Italian Government has approved the financing of \$55 million for the rehabilitation of the national telecommunications network in Mozambique. The sum will be used in the areas of exchange, transmission, local networks, training, and supervision of the project. The project will be carried out in the Nampula, Gaza, and Maputo provinces and provides for the rehabilitation, modernization, and expansion of telephone networks, especially in the cities of Nacala, Nampula, Xai-Xai, Chokwe, and Maputo. Telephone connections with those cities will be automated.
[Excerpts] [Maputo Domestic Service in Portuguese 1030 GMT 31 Jan 85 MB]

CSO: 5500/86

NIGERIA

RADIO STATIONS MAY REOPEN

AB191154 Lagos NAN in English 1038 GMT 19 Jan 85

[Text] Owerri, Jan 18 (NAN) — All the radio stations recently closed down by the Federal Military Government would be re-opened when the country's economy improved and if the continued presence of the stations were necessary, the minister of information, social development, youth, sports and culture, Group Capt Emeka Omeruah, said in Owerri yesterday.

He told newsmen that government could no longer maintain the huge number of staff in the Federal Government-owned radio and television stations, adding that government wanted a situation where it could manage its staff strength effectively. Group Capt Omeruah said that the Federal Government was still studying the report submitted by the Kolade Commission on rationalisation of television services and that its view would be made public soon.

The minister commended the press for the work done so far in salvaging the country. Without the press, he said, it would have been difficult for the present military administration to do all it had done. "The press has done well and I hope it will continue to be partners in progress," the minister added.

CSO: 5500/91

NIGERIA

BRIEFS

POSSIBLE COOPERATION WITH ROMANIA--Nigeria and the Socialist Republic of Romania are discussing the possibilities of co-operation in the development of telecommunications services in the country. This was disclosed recently by the Permanent Secretary, Ministry of Communications, Malam Ibrahim Aliyu, while receiving the Ambassador of Romania, Dr Vasile Chivulescu in his office in Lagos. He said that his ministry was considering the acquisition of Romanian telecommunications equipment especially spare parts for existing exchanges in the country. Malam Aliyu who stood in for the Minister of Communications, Lieutenant-Colonel Ahmed Abdullahi, also disclosed that both sides would explore the possibility of a joint manufacturing venture in the field of telecommunications equipment in the future. Ambassador Chivulescu had earlier disclosed that Nigeria and his country were already engaged in a wide range of bilateral agreements in both social and technical co-operation. His country, he said, was always willing to assist Nigeria in her bid to develop industrially. Telecommunications, according to him, remained one of the most vital instruments of ensuring the independence and sovereignty of any nation. It was also revealed that the Minister of Communications Lt-Col Ahmed Abdullahi would address the press on the activities of his ministry on January 28. The minister is expected to use the opportunity to answer questions related to the newly established Nigeria Telecommunications Limited (NITEL). [Text] [Kaduna NEW NIGERIAN in English 10 Jan 85 p 9]

FRCN RESUMES EDUCATIONAL BROADCASTS--The Federal Radio Corporation of Nigeria (FRCN) has now resumed its educational transmission. The transmission which started Monday morning can be received on 918 KHZ, 327 metres in the medium wave band in Lagos and a few neighbouring states. In an interview with a Radio Nigeria correspondent, the General Manager of the service, Mr Oladipo Ayemi said that the station temporarily went off the air six months ago due to a breakdown of its shortwave transmitter at Igedde, near Ikorodu in Lagos State. He stated that efforts were being made to put the transmitter back in use so as to make its programmes reach the entire country. He said that the station carried 14 programmes over 18 hours a day from 9.15 a.m. to 11.00 p.m. Programmes for the station include those for primary, secondary and adult education. Others are lectures for university students, WAI jingles and moral instruction. [Text] [Kaduna NEW NIGERIAN in English 16 Jan 85 p 1]

CSO: 5500/81

MOZAMBIQUE

BRIEFS

TELECOMMUNICATIONS CONFERENCE--The fifth regional conference of the Southern African Telecommunications Administration [SATA] ended in Maputo at midday today. During the closing session, Engineer Rui Fernandes, general director of Mozambique telecommunications, read a communique which summarizes conference discussion on the latest schemes for using various telephone and telex networks within Southern Africa. It also examined the financial transactions connected with the costs of services, as well as the need for cooperation in the field of professional training. In addition, the conference reviewed the progress toward implementing various development projects for the regional telecommunications network. Since financial problems have been an obstacle to the development of telecommunications in the region, the SATA fifth conference also hailed the Southern African Transport and Communications Commission for its efforts to mobilize funds for the improvement of the sector. During the conference, the subcommittee for management of frequencies also held its first meeting with experts from all member countries of the Southern African Development Coordination Conference. This resulted in an agreement on the coordination of frequencies among these countries. Resolutions on the admission of Angola and Tanzania into SATA were also approved during the conference. The two countries have not been taking part in SATA conferences. [Text] [Maputo Domestic Service in Portuguese 1700 GMT 19 Feb 85]

CSO: 5500/96

SIERRA LEONE

BRIEF

TASS NEWS TRANSMISSION--The Soviet news agency TASS this afternoon officially began its news transmission to Sierra Leone, (?the) first from Eastern Europe. At a ceremony to mark its inauguration at the Government Information Services this afternoon, the minister of information and broadcasting, Edward Kargbo, said that such transmissions will increase the emission of information to this country and correspondingly make Sierra Leone better exposed to the mass media in the Soviet Union. Mr Kargbo assured both the USSR ambassador and the TASS correspondent accredited to Sierra Leone, (Aleksandr Yurin), that all information from this country would be extensively utilized in the Soviet Union. [Sentence as heard] He expressed appreciation to the Soviet engineer who installed the telex equipment. The USSR ambassador, Yuriy Meshkov, said that the agreement on news information was part of a number of exchange projects to be undertaken in the country. Present at the ceremony were the permanent secretary, Fred Savage, the director of information, Herbert Williams, and the assistant comptroller of international division, (Harun Buhari). [Text] [Freetown Domestic Service in English 2200 GMT 5 Feb 85 AB]

CSO: 5500/89

SOUTH AFRICA

TUTU ALLEGES 'SCANDALOUS' CAMPAIGN BY SABC

AB211155 Paris AFP in English 1131 GMT 21 Feb 85

[Text] Johannesburg, Feb 21 (AFP) — Nobel Peace Prize Laureate Bishop Desmond Tutu has withdrawn from a South African television programme that was to be screened tonight, following a scathing attack on him by the state owned radio on Tuesday. The attack, which suggested Bishop Tutu, an outspoken critic of the country's apartheid system of racial discrimination, supported a campaign in the United States for disinvestment from South Africa, was made in the daily commentary on the radio.

Bishop Tutu said today he refused to have any dealings with the South African Broadcasting Corporation (SABC) until the corporation apologised to him for the commentary. Bishop Tutu has denied he supports disinvestment. At his enthronement as Bishop of Johannesburg last month he said he would advocate economic sanctions against South Africa if apartheid was not scrapped or in the process of being abolished in 18 to 24 months.

On tonight's programme Bishop Tutu was to have appeared with Johnny Johnson, editor of the *CITIZEN* newspaper which supports the government, and Raymond Parsons, chief executive of the Associated Chambers of Commerce.

Bishop Tutu said the editorial attack on the radio on Tuesday had been the culmination of a campaign against him by the SABC.

He told AFP: "I am opposed to the stance of the SABC which behaves as a propaganda tool of the government. I was prepared to appear to see if they were redeemable. But this attack was the culmination of a scandalous campaign against me." Not only had the SABC attacked him when he won the Nobel Peace Prize, but he said it had been guilty of consistently slanted reporting on his statements.

The radio comment said Bishop Tutu had now pledged to support the "radical American movement Transafrica" and yet he still denied he supported disinvestment in South Africa. Transafrica supports economic sanctions against South Africa for its racial policies, and SABC (?alleged) that Bishop Tutu had "written a public letter soliciting funds for the organisation. "But the bishop's antics raise more important considerations than the fate of one ambitious clergyman," the radio said. "It is the growing public exposure by such people themselves, through the very extravagance of their statements and actions, of the fraudulence of their concern for human rights as the mainspring of their political activities," it charged.

CSO: 5500/95

SOUTH AFRICA

BOP TV SPILLAGE MAY BE CUT

Johannesburg THE CITIZEN in English 6 Feb 85 p 2

[Text] Cape Town--The SABC intended installing new transmitter equipment that might result in a reduction of spillage of Bophuthatswana TV signals into "non-target" areas, the Minister of Foreign Affairs, Mr Pik Botha said yesterday.

Answering a question by Mr Dave Dalling (PFP, Sandton), he said the SABC agreement with Bop-TV did not impose any obligations on the Corporation to provide a service to people outside the target areas.

The SABC intended installing transmitter equipment close to target areas to improve reception but this could result in a reduction of spillage into other areas, Mr Botha said.

In reply to another question from Mr Dalling, Mr Botha said Transkei and Venda had asked the SABC to relay its signal to the two homelands.

He added there was a certain amount of "inevitable spillage" of SABC-TV signals in Transkei, Bophuthatswana, Venda, Ciskei, Botswana, Swaziland, Lesotho, Mozambique and Zimbabwe, but to the best of his knowledge no steps had been taken to block these signals.

Mr Dalling later issued a statement saying the SABC was "so frightened of competition that it intends spending large sums of money in blocking the signal of a small TV station in Bophuthatswana from reaching the Witwatersrand."

This displayed a disdain for free enterprise, freedom of individual choice and a lack of confidence in SATV's own programmes, Mr Dalling said.--Sapa

CSO: 5500/87

SOUTH AFRICA

BRIEFS

NETHERLANDS ENDS SUPPORT--The Netherlands Government's decision to discontinue its support for the ANC's broadcasting section, Radio Freedom, will have little effect on the station's operations. A group of Netherlands workers in the media industry have formed a so-called solidarity group, Omroep, to assist Radio Freedom. The group is said to be exchanging information with the ANC that could be used in its propaganda broadcasts to South Africa. Radio Freedom still receives support from a number of broadcasting organizations in Africa, and four countries provide it with facilities to broadcast its programs. [Text] [Johannesburg Domestic Service in English 1130 GMT 21 Feb 85]

CSO: 5500/95

ZIMBABWE

BRIEFS

SOLAR-POWERED TELEVISION, RADIO COMMISSIONED---Thousands of residents from (Masekwa) growth point in Marondera yesterday witnessed a commissioning of a solar-powered color television, radio, and public address system. The set was installed at a cost of 9,000 dollars and it will enable 55,000 people (Mutema) District to view television and listen to the radio. The set is the first to be installed in the rural area and is maintenance free. Speaking at the commissioning ceremony, the minister of information, posts, and telecommunications, Comrade Nathan Shamuyarira, said the government is to establish an information center in each of the 65 growth points in Zimbabwe. Comrade Shamuyarira pointed out that the rural information center will facilitate communication between the government and the people at all levels. [Text] [Harare Domestic Service in English 0500 GMT 2 Feb 85 MB]

CSO: 5500/85

EUROPEAN AFFAIRS

EIB GRANTS LOAN FOR BUSINESS COMMUNICATION VIA SATELLITE

Paris AFP SCIENCES in French 29 Nov 84 p 31

[Article: "EIB and EEC Loan To France To Manufacture Three Satellites"]

[Text] Brussels--The European Investment Bank (EIB) and the European Commission have agreed to lend FF 1.1 billion to France for the installation of a datacom system for satellite communications and data exchange among businesses, it was announced jointly by the two European institutions on 26 November in Brussels.

These loans are granted to the National Telecommunications Fund (CNT) to manufacture three satellites. The EIB is lending 800 million over 10 years at a rate of 11.85 percent, and another 300 million will be taken from the resources of the New Community Instrument (NIC) for a similar period and at a rate of 10.9 percent.

The project will include, among other things, the construction of six repeaters for inter and intra-company communications, three for telephone traffic and one for TV broadcasting to overseas departments.

Part of the equipment is intended to improve communications with overseas departments: two of the satellites will be placed in geostationary orbits, the third one will be kept in reserve on land.

The project, estimated at FF 3 billion, should be completed by the end of 1986. It also includes a reference and management station in Mulhouse, the construction and equipment of 100 ground stations for companies, and 80 stations for the reception of TV signals and connection to the subscribers.

The equipment will be compatible with the technology used in the Eutelsat system, and part of it will be leased from the European Space Agency and the German Postal Administration. These advanced technologies will require supplies from companies in nine other countries, including six EEC countries.

These loans are the first instalment of a total package that should amount to FF 1.3 billion, including 900 million to be taken from resources of the EIB, and 400 million from those of the NIC.

9294
CSO: 5500/2570

EUROPEAN AFFAIRS

BRIEFS

SWEDEN PARTICIPATES IN CORONET--The Swedish company Investment Ab Beijer will participate in the first private direct-TV satellite project geared to Europe, the Luxembourg company Coronet announced on 22 November. The Beijer group will hold a 10-percent interest in Coronet. It has also signed two options to negotiate the use of repeaters. Under these options, the Swedish group will have the exclusive right to negotiate the use of two Coronet repeaters to broadcast TV programs in Scandinavia. Beijer is a prominent Scandinavian investment company whose stock is listed on the Stockholm and London exchanges. The group plays a prominent part in the development of cable and satellite systems in Scandinavian countries. The Coronet satellite, to be launched early in 1987, will broadcast on 16 channels, including both pay TV and programs financed by advertising, on a receiving area covering all of Western Europe. The total cost of the project is estimated at \$180 million. [Text] [Paris AFP SCIENCES in French 29 Nov 84 p 32] 9294

CSO: 5500/2570

FINLAND

VAASA FIRST FINNISH CITY TO RECEIVE SOVIET TV VIA SATELLITE

Helsinki HELSINGIN SANOMAT in Finnish 19 Jan 85 p 11

[Article: "Irritation in the Ministry of Transportation Because of Postal Service Actions: Soviet Satellite Broadcasts TV Programming to Vaasa"]

[Text] For a week now, the people of Vaasa have been able to watch Moscow's Channel One, which is transmitted via the Soviet satellite Gorizont, through a cable television network. Vaasa is the first locality in Finland to receive television programming through the Soviet satellite.

In the beginning of the year, after the matter had been discussed with Soviet officials, it was the postal and television administration which granted the license for the transmittal of Soviet satellite programming to Vaasa's cable television company.

The ministry of transportation has not viewed this kind of development completely favorably. There is grumbling in the ministry that the postal and television administration head should have kept in close communication with the ministry before final approval, because the matter touches upon even foreign policy to an extent. There are even unofficial hints in the ministry that the postal director used his powers too liberally. At the same time, it is admitted that the granting of this type of license belongs to the postal and television administration.

Transportation minister Matti Luttinen did not want to take a stand on the matter. According to him, Vaasa's satellite transmissions have not been discussed in the ministry of transportation.

The Postal director Pekka Tarjanne was surprised at the news of the ministry's grumbling. Tarjanne said that the transmission of satellite programming to Finnish cable networks has been under discussion with the Soviets for a long time, and that the ministry has been informed of it over the years. Tarjanne explained that the license for Vaasa was granted on the basis of his decision, and that the Postal service has the right to grant such a permission. According to Tarjanne, a few other cable companies have expressed some interest in the matter as well. Vaasa's license is the first.

Since the 9th of January, those of Vaasa's cable network members who have a modern S-frequency-equipped receiver have been able to watch Moscow's television program. Others must get for their receivers an additional device which will be on the market in a few weeks. About 5,000 households belong to Vaasa's network.

Vaasa's cable network shows the same Moscow program which people in Helsinki, for example, can view through Tallinn television.

12688

CSO: 5500/2557

FINLAND

BRIEFS

AUTOMATED PHONE EQUIPMENT PROJECT--Nokia information-systems and the acquisition cooperative association of the phone company have signed mutual contracts, by which the member-organizations of the cooperative will be provided with data transfer modems, digital telephone exchanges and serial phone systems valued at over 50 million markkaa. During 1984 Nokia has manufactured approximately 50,000 modems and production is estimated to grow 50 percent in 1985. The majority of the devices will be exported, for example, to the Far East. Nokia is one of Europe's largest modem manufacturers. [Text] [Helsinki HELSINGIN SANOMAT in Finnish 3 Jan 85 p 26] 12688

CSO: 5500/2557

FRANCE

CGE SIGNS CONTRACT TO SELL E-10 EXCHANGE TO CHINA

Paris LES ECHOS in French 23 Jan 85 p 3

[Article by special correspondent to Peking, Valerie Lecasble: "CGE's Chinese Contract: They Signed It"]

[Excerpt] Negotiations untangled at the last minute. It was only a few minutes before catching his plane for Paris that Georges Pebereau, chief executive officer of CGE [General Electricity Company], signed a telephone contract worth close to FF 500 million, in Beijing yesterday. It involves supplying 14 E-10 B time-division switching exchanges and transmission equipment (20 percent of the total) consisting essentially of optical fibers and connecting equipment. To be used to install 100,000 telephone lines in Beijing.

The suspense lasted until the very last second. Indeed, the negotiations that were started two years ago and carried out step by step for nearly seven weeks were stumbling over a question of price. "Too expensive," the Chinese would say through their purchasing organization CNTIC (China National Technical Import Corporation). "We do not want to lose our shirt," CGE would answer. A compromise was found at the last minute yesterday evening.

Thus, CGE is gaining access to a potential market of 1 billion souls, at a time when hardly more than 4 million Chinese now subscribe to the telephone. And projections are for 32 million subscribers by the year 2000. A veritable gold mine estimated to total FF 30 billion.

The Battle Is Beginning

But we should not delude ourselves: at least in the very first stage, there will be little to be earned. For CGE will have to adapt itself to local conditions, hasten to deliver the first equipment before the end of the year. Yet, that will be a breath of fresh air for Alcatel-Thomson, which is associated to LTT [Telegraph and Telephone Lines] for fiber optics; this is its first large export contract since the Indian contract it was awarded

in July 1983 (FF 3.2 billion). At the same time, other negotiations are progressing satisfactorily, especially in Nepal.

For France, it is a plus at a time when the rate of coverage of its overall balance of trade with China for the 11 first months of 1984 dropped to 59 percent, from 104 percent in 1983. A very marked decline when, on the contrary, the United States, Japan and the FRG are scoring points.

With the aid of the Chinese Ministry of Electronics, CGE has undeniably won a nice victory. But its battle on Chinese territory has only just begun. Its competitors, whose names are NEC, Ericsson and especially ITT, are not about to give up. They will fight to conquer that enormous incipient market.

Supported by the Chinese Post and Telecommunications Administration, ITT, through its Belgian subsidiary BTM [expansion unknown], was also already awarded a contract similar to that of CGE, one and half year ago in Shanghai. Since then, a spoke was somehow put in its wheel by the COCOM [NATO Coordination Committee] (which regulates the sale of high-technology products to communist countries).

CGE will now have to go through the same authorization procedure. The stakes are high. For each manufacturer can hope to build some day a local factory with a capacity of 300,000 lines per year. This at a time when all firmly expect to see a rapid process of industrialization in China (instead of mere imports) and at a time when the race to impose standards is about to begin.

Reversing the Trend

The Chinese policy, which is closely linked to the decentralization of the country and, until now, consisted in awarding small local contracts to different manufacturers, seems to be about to be revised. Toward greater voluntarism and increased equipment harmonization. But obviously after "full-scale" testing of the equipment.

The long-range goal of manufacturers, therefore, is true industrial cooperation with local administrations, through joint ventures. They want to convert the try already scored for, in a country as vast as China, 100,000 lines can obviously only be a start.

9294

CSO: 5500/2570

FRANCE

TDF ANNOUNCES SOLUTION TO TWT PROBLEMS ON SATELLITE

Paris LE MONDE in French 19 Jan 85 p 15

[Article signed J.-F. A.: "TDF-1 Direct Television Satellite: Green Light for Thomson Electronics"]

[Text] The problems encountered by manufacturers in developing the payload of the TDF-1 direct television satellite, which is scheduled to be launched on 7 July 1986 by the European Ariane rocket, have now been solved. Indeed, in a communique published on Friday 11 January, the French Television Broadcasting Company (TDF) announced that, in agreement with the National Center for Space Studies, it was confirming the order placed with Thomson for travelling wave tubes (TWT) to be installed on the TDF 1 and 2 satellites.

These tubes are used to amplify the signal sent from the earth before the satellite transmits it back to the users. A few months ago, problems occurred in the development of their carbon collectors, which would cause trip-outs (about one per day) leading to transmission interruptions. This is now a thing of the past, as are the problems encountered in the operation of some components of the satellite payload made in the United States (capacitors) and in Germany (TWT power-supply systems). As a result, three high-power (230 watts) travelling wave tubes manufactured by Thomson will be installed on each of the two French satellites, which will also be equipped with three other tubes supplied by the German company AEG [General Electric Company].

The TDF company has also communicated to interested manufacturers the standards of the equipment to be used for the reception of the TV programs transmitted by the satellite. This is the standard called "D-2 Mac Paquets" which, last 16 October, was already the subject of some agreements among European manufacturers. However, TDF requested that, in a first stage, this equipment should also be able to operate with the Pal-Secam system. To "prepare the ground," according to the chief executive officer of TDF, Mr Francois Schoeller, a first order for such equipment could be placed during the first quarter of this year, and manufacturers are advised to have their products ready for sale on the market by July 1986.

9294
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SWEDEN

SWEDEN CONSIDERS 'FLYING LETTER BOX' SATELLITE SYSTEM

Stockholm NY TEKNIK in Swedish 8 Nov 84 p 20

[Article by Anders Wallerius: "Flying Letter Boxes May Be Next Swedish Space Project"]

[Text] "Flying letter boxes" may be the next project undertaken by the Swedish space industry. These are small, inexpensive satellites which will fly all over the world, collecting short messages at one point and sending them back at another.

"We don't yet know who will use these letter boxes," says Per Zetterquist of the Space Company.

"But the industry which will make the system is at any rate interested."

The "flying letter boxes" were presented recently in the DFR's (Delegation for Space Activities) report on the future. This is one application of small satellites which warrants further study, the report states.

Preliminary studies for the project will be made by the Space Company over the next few months.

"Only after our preliminary research will we know whether any technical precedents for the system exist, and whether or not there is any interest in this type of service," says Per Zetterquist at the Space Company.

"Similar thinking is going on elsewhere around the world, and this type of enterprise would be well suited to Swedish industry."

Saab and Ericsson are both interested and competent in producing these flying letter boxes, Per Zetterquist feels.

Two Hours

The letter boxes would be low-flying satellites in circumpolar orbit. Such an orbit would allow a satellite to pass over every point on the surface of the globe at least once every two hours.

A short message could be sent by radio to the satellite from anywhere in the world. The message would be stored in the satellite's computer until it passed over the addressee elsewhere in the world. The message would then be retransmitted.

The Swedish Viking satellite may serve as a model for the design of a letter-carrying satellite.

The Viking is a small and relatively inexpensive satellite which is used today for research on the aurora borealis, among other things. The Viking travels in a low circumpolar orbit, gathering data which it later transmits to a receiving station in Kiruna.

Low Altitude

Because the letter-carrying satellite travels at a low altitude and passes directly over the ground receiving station, the system is relatively inexpensive. At any rate, it would be much less expensive than the "Trucksat" system which had been slated to serve as part of Tele-X. Trucksat, which was to transmit messages to and from trucks, wherever they might be, proved too expensive for the operators.

It is still not clear exactly who is to make use of the proposed letter-carrying satellites.

"At any rate, there is some interest in the flying letter boxes," says Per Zetterquist.

He is thinking of the Department of Foreign Affairs, which would use the system to send messages between the department and Swedish embassies abroad.

8954
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SWEDEN

SWEDEN STRIVES TO BECOME TRUE SPACE NATION

Stockholm DAGENS NYHETER in Swedish 9 Jan 85 p 28

[Article by Eric Dyring: "Sweden Becomes Space Nation in the Fall: Satellite Studies Northern Lights"]

[Excerpts] The moment of truth is now approaching for Swedish space research. The all-Swedish satellite "Viking" is undergoing technical fine-tuning at Saab in Linkoping. The satellite will soon make its long trip down to French Guiana in South America, where it will be fired into space in the fall.

Space Policy

"Viking" is an important part of the Swedish space policy which the government ordered in 1978, and it satisfies the demand for an inexpensive satellite. The Space Company oversees the project, while Saab Space AB is building the satellite.

"This is probably the world's cheapest satellite," says company vice president Roland Gareskog. The total cost will be roughly 100 million Swedish kronor. "Viking" is unique at present, but there will surely be another similar satellites to follow.

In 1985 Sweden will thus become a true space nation with its own satellite, gaining membership in the exclusive space club.

This will be the outer space graduation exam for Saab Space AB. Indeed, the company has been involved in the electronics used in 20 different space projects previously, but "Viking" is the final exam.

The company is small from an international perspective, with sales of roughly 600 million kronor in 1983, and 200 employees. Technical expertise gleaned from Saab's three major areas of interest - trucks, personal vehicles and airplanes - is applied in the development of space products.

Satellite Tele-X

The other cornerstone of the Swedish space program is the Tele-X satellite. A Tele-X prototype is being built alongside Viking in the "clean room."

This project presents a number of special problems to the technicians. The Tele-X has two "super-ears" hanging from its outside, which are intended to capture radio signals from the earth and transmit them back to receivers.

This places stern demands upon the stability of the construction. No motion can be tolerated. New materials, including mixtures of titanium and carbon fiber, are being employed.

Computers determine the optimum material strengths. The Air Force's new CRAY-1 super-computer has proven to be an effective ally. Problems that used to require almost 30 hours of computer time can now be solved in eight minutes.

Tele-X will broadcast TV, data and telecommunications over Sweden, Norway and Finland. The three countries are cooperating in the project. Compared with the Viking, it is a gigantic undertaking.

The Viking weighs roughly 500 kg, while the Tele-X will weigh four times as much when it is launched. According to plan, launch will take place in 1986-87.

Tele-X will point its antennas towards the north from an attitude of 36,000 kilometers above the equator. Ground-based parabolic antennas must be roughly 50 centimeters in diameter in order to be able to receive TV programs or other information.

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SWEDEN

TELECOMMUNICATIONS AGENCY TO INVEST IN EXPANDING VIDEOTEXT NET

Stockholm DAGENS NYHETER in Swedish 8 Feb 85 p 12

[Article by Olof Bergman]

[Text] Over the next five years the Telecommunications Agency will invest about 300 million kronor on the expansion of the so-called videotext net. Income in Europe from such services will rise from about 500 million kronor today to 5 billion in 1990. In any case, this is the opinion of media experts at the U.S. firm Frost and Sullivan.

For most people the term videotext is probably an unknown term. If one says Datavision, Teledata, Viewdata or Prestel some people would nod in recognition. This was the system for seeking information in large databases with the aid of a telephone and a special TV with a button terminal. News and sometimes some advertisements were presented in square graphics and texts in reddish yellow and blue. It was most similar to captioned TV. This is now a stage which has passed by.

Today, it is called videotext and it is meant to provide the public with what one calls "value added network service"--in Swedish, "vardehojande natverks-tjanster"--which is abbreviated to "VAN." Even the experts are not completely in agreement on what this really means.

Videotext will still in all probability put its mark upon everyday life in Western Europe during the rest of the 1980s. Several different services will be available to the public via the press of a button on individual terminals or microcomputers.

Market Interest

This could involve the purchase of a house, car or boat, the ordering of trip reservations or theater tickets, or the usage of services at banks, post offices or insurance companies. The list can surely be made much longer.

"We have acquainted ourselves with the area of market interests," says Marketing Director Ingemar Wahlstrom of the Telecommunications Agency. "A new medium requires that all the actors find their right roles. We believe that videotext will be of great significance in reference to transaction services of various types. Earlier, it was believed that the new system of telecommunications was mostly suited for searching information in gigantic databases."

"We at the Telecommunications Agency have now decided upon a philosophy which will mean investing 300 million over the next few years. Very little is still known about which way the big interests will develop."

Computer Maturity

It does not work to try to use opinion polls to measure development trends within a new medium. Computer maturity in Sweden is the highest in the world, which provides a basis for the investment the Telecommunications Agency is now making.

An integral factor for the expansion of a public videotext service is that the Telecommunications Agency is establishing a general rate of charges for all information depositors to the net. This means that everyone shall be able to compete under equal conditions. Up until now, the agency has adapted a special rate of charges for customers in the state concern which is still called Datavision. In the future, the determinant of competition will, however, be the quality of services and not the rate of charges.

Even now, videotexts are used in businesses, organizations and agencies. Banks, insurance companies and the post office have used this new medium in different areas. It is of common interest to almost everyone that some kind of "mail box" or message service exist in the net. The Telecommunications Agency also wants such a mail service established in the future videotext net.

General Store

How people will be affected by this new medium has not yet become the object for expert studies. Ingemar Wahlstrom says that "One can count on work and professional roles in general being affected by terminal usage." Within a few years it is estimated there will be approximately 100,000 so-called network stations with four or five users at every station.

As opposed to the usual computer net with several different databases for searching information, the videotext net is meant as a kind of "general store." One will be able to choose between several different services which will be available for a low charge and at local telephone rates.

With sinking prices for terminals, such a system could soon be owned by everyone. Then, there will be nothing to stop one from taking care of most business tasks at home, from monitoring bank accounts to establishing tax returns. One could possibly send in one's tax return to the taxation authorities via the "mail box" in the videotext.

Creator Dependence

It remains to be seen what effect this will have upon future everyday culture when people go to the terminal and press buttons instead of meeting people in different professional roles. Net optimists believe that the new medium can simplify several tedious routines which steal time from the more pleasurable freetime activities.

Opponents can maintain--as in the infancy of the computer age--that a person can become alienated by dependence upon a machine. One loses everyday life's human network of contact. These future hypotheses can state what they want. It is said we will not be able to avoid videotext for the rest of the 1980s.

Of great importance in this development is that all users will be protected against unauthorized usage. There are theoretical possibilities today to register all applications which are made in the videotext net. For example, if someone is looking at listings of summer cottages or boats, he will not then want to receive a mail box full of advertisements from different realty firms the next day.

The Telecommunications Agency is maintaining a standing dialogue with the Computer Inspection Board concerning these activities, says Ingemar Wahlstrom.

It has not yet been of immediate interest to begin monitoring videotext service, but it could come to the fore when the expansion gets under way. It must be the case that telephone secrecy will be equally protected in a computer net as it is in general telephone usage. Eavesdropping must not be allowed to occur. Hence, the net shall not be allowed to become a variant of the vision of "Big Brother," or have the state be able to constantly monitor all citizens.

Videotext is the designation for data-borne communication between a terminal and a database. By means of a new picture technique--so-called CEPT² standard--it has become possible to produce graphic pictures which are very close to photographic quality.

FOOTNOTE: CEPT is an abbreviation for "Conference europeenne poste et telephonique," which is a conglomeration of the European state telephone and postal authorities. This establishes what technology will be used in the authorities' different areas.

When the new media began to be used in the mid-1970s, graphics were very clumsy and square. Teledata or Viewdata, which it was then called, was based on the technique that average TV sets would be equipped with an appendage for reception. With the help of a telephone and a so-called modem, it could be connected with different information donors, who were all accumulated in a giant database at the Telecommunications Agency.

It was more than experimental activity, because a series of newspapers also took part for about a year.

When the videotext net will be expanded, the Telecommunications Agency will still have its database called Datavision left, which will provide users with different kinds of services from fee controls to mail box functions.

12562
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SWITZERLAND

OPENING THE INTERNATIONAL CONNECTIONS OF TELEPAC NETWORK

Bern PTT TECHNISCHE MITTEILUNGEN in German Jun 85 pp 207-212

/Article by Bernard Aeby, Bern/

/Text/ Summary. CCITT recommendation X-75, Standard for International Interconnection of Packet-switched Data Networks, has contributed materially to the extension of services to network users. It permits access to similar networks world-wide. This is also true for Telepac, the Swiss packet-switching system.

I. Introduction

The number of public data networks which are based on packet-switching technology is continuously increasing on a world-wide basis: Transpac in France, Datex-P in Germany, PSS in Great Britain, Telenet and Tymnet in the USA, Datapac in Canada, Venus-P in Japan are only a few. Various new networks will soon be operational in Portugal, Spain, Italy and other countries. The interconnection of these networks with one another permits an international data communications service which is of great importance to the user.

The Swiss Telepac data network, in commercial operation since 1 July 1983, now provides about 30 international connections (Figure 1); further connections are being tested or are planned. This article describes the fundamentals of international network connections and explains several technical aspects of conducted tests, which serve to provide Telepac users a new high-quality service.

2. Interconnecting Technology

Under pressure from public and private telecommunications organizations, which already were operational or were developing packet-switched networks, Study Group VII of the International Consultative Committee for Telephony and Telegraphy (CCITT) formulated recommendation X.75, which forms the standard for international interconnection of packet-switched data networks. A revised version of this recommendation was approved during CCITT's VIIth session in Geneva in 1980.

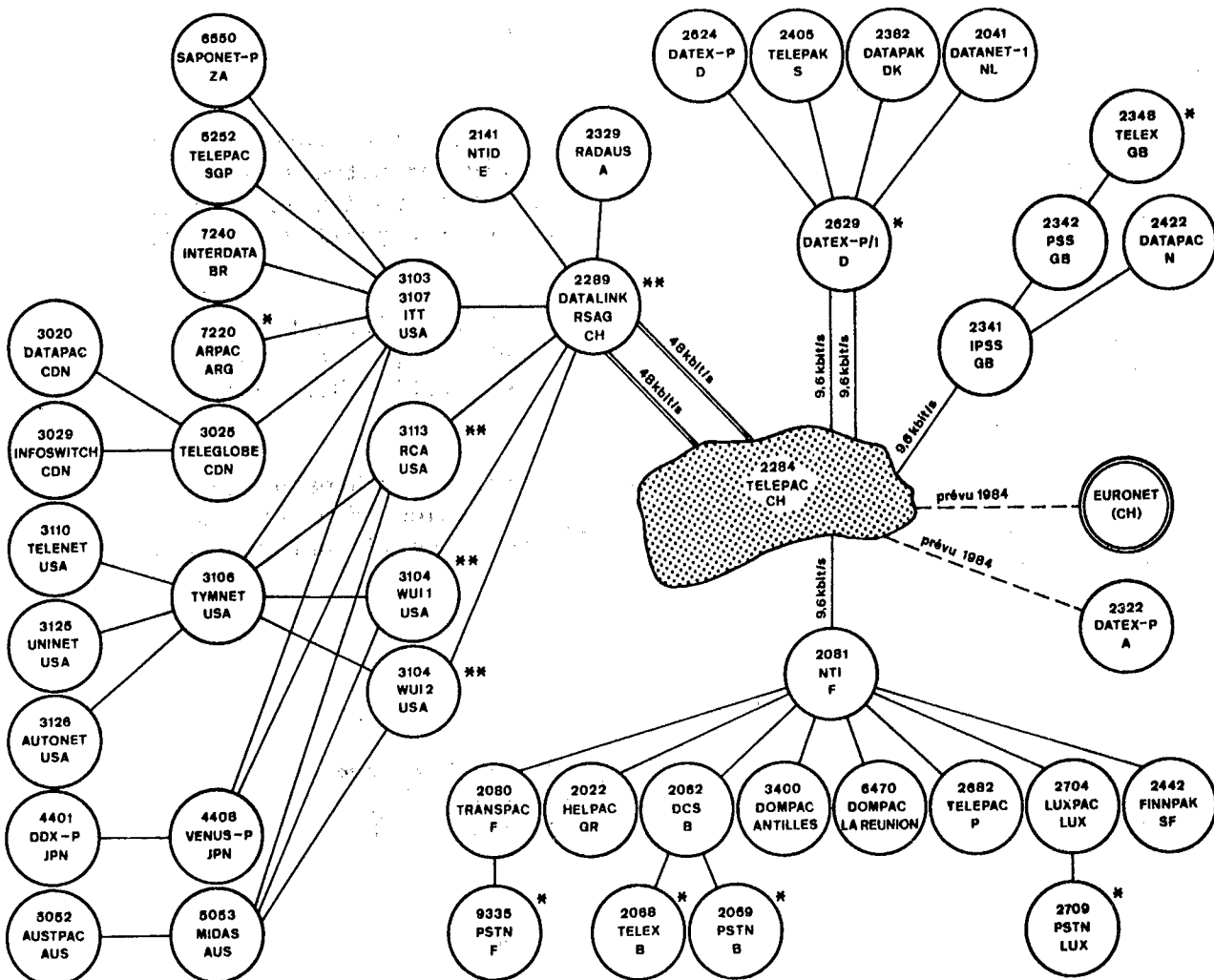


Figure 1. International Telepac Connections, March 1985

** Carrier Companies

* Connection only in one direction (Call Packet)

PSTN Telephone Dialing Network

2.1 X.75 Procedure

CCITT recommendation X.75 determines the procedure between two units, the so-called "signalling terminals" (STE), which represent the international part of packet-switched nodes and are connected with each other by a direct, international line (Figure 2). Just like the user connection protocol based on X.25, X.75 is also subdivided into the three lowest levels of the IOS reference model:

- physical layer,
- transmission control layer,
- packet level.

The procedure is very similar to that of X.25. It differs from it primarily by an extension formed by the field for network utility codes in "call" or "release" packets. This information is exchanged between the two connected networks, i.e., their signalling terminals (STE).

CCITT recommendation X.75 contains more than 10 different network utility codes, not all of which must be exchanged; neither are all of them recognized or processed by Telepac. We mention here only those which are currently used by Telepac:

- Call Identifier. This network characteristic is present in each "call" packet. It serves as unique identification of a certain virtual connection and is used primarily to track virtual connections during error conditions.

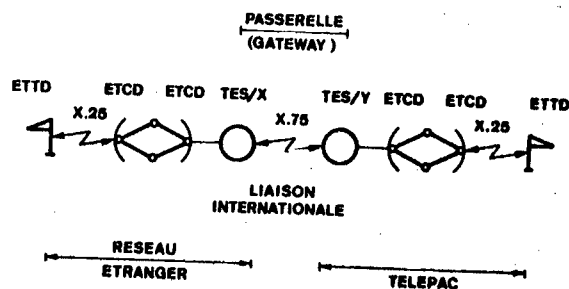


Figure 2. International Connection Between Two Terminal Equipments

ETTD Data Terminal Equipment
 ETCD Data Connecting Equipment
 TES Signalling Terminal (STE)
 Reseau Etranger Foreign Network
 Liaison Internationale International Connection

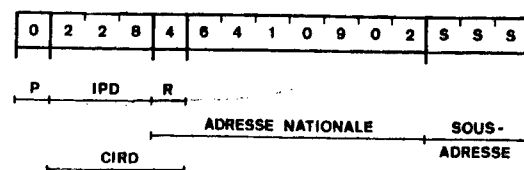


Figure 3. International Address Format

P International Prefix
 IPD Data Country Code (DCC)
 R Network Identifier
 CIRD Data Network Identification Code (DNIC)

- Throughput Class Indication. This code is transmitted in the "call" packet and the "call-connected" packet. It indicates the throughput class, which is permitted for the particular connection, based on expected traffic and the resources available at the signalling terminals. Since in Telepac the network-internal packet processing is based on the datagram principle, the throughput required by the other net cannot be guaranteed: similarly resources for the connection cannot be reserved. This network utility code is reported and tested on the user connection side of the specific terminal, depending on the transmission speed specified in the service data.

- Transit Network Identification. This code indicates the transit networks which are used for the virtual connection. The code appears in the "call" packets and in the "call-connected" packets. Telepac, at this time, is not designed to be an international transit net. It can, however, accept transit traffic from other countries, e.g., Great Britain or Germany.

Additional network codes defined in recommendation X.75 are not yet incorporated in Telepac; if received, they are ignored or rejected.

These are:

- indication of window size,
- indication of packet length,
- indication of reverse charge request,
- indication of closed user group,
- estimated transit delay,
- tariffs,

2.2 International Addressing

The addressing method is described in the international numbering plan of CCITT recommendation X.121. This will assure world-wide international cooperation of public data nets as far as addressing is concerned. The Telepac numbering plan conforms to this recommendation. Each public data net is characterized by a four-digit number, the data network identification code (DNIC). The first three digits represent the data country code (DCC), and are subdivided according to country or geographic subdivision, based on recommendation X.121. The fourth digit indicates a specific network in a country. For example, in Switzerland:

-DNIC 2283 Euronet (Switzerland),
-DNIC 2284 Telepac.

Each terminal equipment connected to Telepac is characterized by a national number of at least eight digits. The first number identifies the network (N) within a country and is also the last digit of the data network identification code (DNIC) (Figure 3). These eight-digit national numbers can be augmented with three digits for subaddressing. This subaddressing makes it possible to address a certain terminal controlled by a cluster controller connected to the network.

For the establishment of international connections originating from Telepac, a one-digit international prefix P must be added to the data country code and the national number. This permits accessing the equipment and the processes required for international traffic. The value of this prefix is not defined in recommendation X.121; In Telepac, it has been set to 0 (zero). Thus an international number consists of a maximum of 15 digits, which includes the three digits for subaddressing.

3. Tests of International Connections

The purpose of these tests is not to test the X.75 protocol of the partner network, but rather to ensure reliable service for users of the international connection of both national networks. The main purpose here is to test the connecting functions from user X to user Y, which means that end-to-end tests must be performed. An obvious prerequisite for this is that the X.75 protocols realized in both networks are compatible and that signalling between the networks functions properly.

3.1 Local National Tests

In the case of Telepac, the Swiss PTT agencies, together with the supplier, Zellweger Uster AG, are undertaking extensive X.75 protocol tests. Two goals are pursued here:

- First, it must be ensured that the X.75 protocol meets the technical specifications of Telepac and that, if necessary, errors are corrected.

- Second, error-free and reliable operation between the Telepac connecting protocols of the end instruments (synchronous X.25 and asynchronous X.28) and the X.75 protocol in the national network must be achieved. Such tests are essentially undertaken in the following groupings;

X.75 Telepac - X.25 Telepac,
X.75 Telepac - X.29 Telepac,
X.75 Telepac - X.28 Telepac.

Not only must normal operation be tested, but with suitable test equipment, error situations will be simulated, so that the Telepac operation can be evaluated under error conditions, e.g., protective mechanisms. Such tests can only be undertaken with suitable protocol simulators and the test network at Zellweger.

3.2 End-to-End Test with Foreign Countries

These are the actual interconnection tests which have two goals. On the one hand, they serve to demonstrate that the two X.75 protocols, which are usually developed by different manufacturers, are compatible and permit reliable connections between both networks. On the other hand, they serve to demonstrate that virtual connections between any user classes of both networks can be established, operated, and disestablished. All possible and controllable end-to-end states of virtual connections are being tested for the following relationships:

X.25 Telepac - X.25 Foreign countries
X.25 Telepac - X.28 Foreign countries
X.28 Telepac - X.25 Foreign countries
X.28 Telepac - X.28 Foreign countries

Obviously such tests require excellent cooperation among the participating staff of both networks and close international coordination.

3.3 Billing Tests

Besides the technical functional tests of the interoperation of user end-equipments, it is also important to test the billing functions, which determine customer charges, both within Switzerland and with foreign countries, as to their correctness and similarities. For this purpose, all chargeable packet types are interchanged in both directions. The results are then examined, based on an analysis and comparison of the billing information (traffic, duration, services, etc.) between both countries. Generally, this can only be done some time after the tests have been made, since telecommunication agencies do their billing periodically, usually monthly or, as in Switzerland, every other month.

4. Conclusions

The interconnection of national public packet-switching networks increases their usefulness to the subscribers. In the period from early 1983 to January 1984, no less than 16 countries were connected to Telepac, which permitted access to about 30 networks. CCITT recommendation X.75 and its world-wide application are the essential factors which have contributed to the success of the international connections. The user of a Telepac-type data network today has world-wide opportunities.

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